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The Certification of Laboratories in California*

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THE fact that there are many untrained, inexperienced and incompetent technicians daily performing laboratory tests, the outcome of which may be a matter of life or death for some patient, is not generally appreciated. The work of such technicians is sentencing some patients to unnecessary anti-syphilitic treatment, allowing others who should be treated to go without treatment, or helping other patients to an unnecessary abdominal operation through a false blood count, and generally confusing the diagnosis for the doctor who seeks light on obscure conditions.

In the public health laboratory, such technicians release contagious cases and carriers, or place in quarantine persons who are not a menace and should not be detained. Any way one looks at it, it is a serious matter that such important service should have no safeguards whatever.

If a blacksmith's apprentice wants to treat the sick for pay, he must take a medical course lasting years; even if he wants to be a chiropractor, he must take some sort of course and procure some sort of license, but if he wants to make laboratory diagnoses for physicians and their patients—literally engage in one phase of the practice of medicine—all he need do in most places is buy some equipment, or get a job and go to work.

The need for protection of the people, their physicians, and the health departments against a low standard of service in this important field, is evident to every competent laboratory man, and to every phy-

* Read at the Meeting of the Western Branch, American Public Health Association, Seattle, Wash., May 29, 1931.

sician who is himself sufficiently in touch with laboratory methods to recognize ignorance and charlatanism, when it appears in the guise of diagnostic laboratory service; for there are charlatans as well as incompetents in diagnostic laboratories, as there are in the general field of medicine. Physicians curiously enough do not seem to appreciate that this problem exists. They apparently do not apply to their laboratory technicians the same reasoning regarding the necessity of adequate education and experience that they apply to themselves. It is doubtless to be explained by the lack of thought and attention that is given this specialty of medicine by the profession in general. Whatever the explanation, it is a fact that less concern is shown by the average individual physician in routing his specimens to a laboratory, and by the average group or hospital in employing a laboratory worker, than to almost any other type of service of which they make use.

The influences that determine the physician's choice of a laboratory are without doubt generally the same that influence patients in selecting their physicians. For some patients, the doctor's sign on the door is sufficient, and for some doctors the statement of the applicant for a job that he or she is a bacteriologist or that he or she is fresh from the laboratory of some hospital, is sufficient. True, the former job may have been that of dishwasher, but this unfortunately may not be gone into. Others may be more cautious; they may require the recommendation of someone else no more qualified than they, to decide on the technical qualifications of the seeker after employment or referred business. Some will pursue the course adopted by a very few patients in choosing their physicians, and in the absence of any official certifying agency, seek the advice of someone who has special knowledge in that particular line.

Such things as personal appearance, convincing manner, a "line of patter" suggesting technical knowledge, a pleasing personality, are very effective in "selling" the laboratory worker to the physician; while the fact that a technician without previous training cannot become competent by working in a laboratory for a period of only 2, 4, or 6 months, is usually lost sight of.

An education in the basic sciences of chemistry, bacteriology, biochemistry and pathology is almost as necessary as for the practice of medicine, and even after the best of college courses, experience under competent supervision is necessary. The average physician, health officer, or hospital executive is not prepared to pass on the qualifications of a technician, and therefore must have some method of distinguishing the competent from the incompetent.

When such facts become common knowledge among physicians,

and others having the selection of directors of laboratories and technicians, both for public health and for clinical work, there will no longer be a problem. Until that time, it seems incumbent on those having a knowledge of the facts, and who are at the same time in a position to improve conditions, even in a limited way, to take such action as their judgment dictates.

My interest in the matter of dependable laboratory service was first aroused as a result of my observations while acting as State Epidemiologist in conjunction with my work as director of the State Laboratory. Later, while executive officer of the department, I tried to get a bill passed by the legislature to establish a licensing system for all diagnostic laboratories, both public health and clinical. This plan was distrusted by the medical profession, at least that part of it which took any interest at all in what was going on in the legislature, and it met the active opposition of certain commercial laboratories. I saw it was no use and dropped the matter entirely, but it seemed as though something should be done. Waiting for improvement through a growing appreciation of the situation on the part of the medical profession, would be like waiting for the millennium. If the doctors had waited for the people to learn that they should, in their own interest, have state licensure of physicians, there would as yet be no restriction on the practice of medicine and surgery. Likewise, waiting for the laboratories themselves to clean their own houses while perhaps promising more, still, seemed too far in the future. Such a waiting policy had no appeal.

Finally, in 1923, we decided to try a voluntary system of approval of laboratories, intending at first to limit our field to public health. Sanction of the State Board of Health was secured, and the work was started, using printed forms patterned after those of New York State, in their work of subsidizing laboratories for public health work. This plan met with a very favorable reception from the local public health laboratories, and when a few clinical laboratories asked for certification, they were included.

In the operation of this plan, an application for certification is followed by a personal visit to the laboratory. The applications are made in writing, on a special form provided by the department. Questions are answered regarding educational qualifications and experience of the director, the number of employees, the physical equipment of the laboratory, types of work performed, etc. The applicant also agrees to keep careful records of work done, including the preservation of certain stained slides, for a definite period, and to submit to inspection as required.

It has not been considered necessary or advisable to require particular methods of examination, but if the method in use is not considered a safe or effective one, approval is withheld unless a satisfactory method is adopted.

Under the regulations of the board, the director of a laboratory, if not the owner, must have full authority to control the policy of the laboratory so far as technical matters are concerned. The records that are required to be kept are those pertaining to the examination of specimens, such as results, name of patient and of doctor who submitted the specimen, etc. The recording system must also be such that any particular specimen can be readily found and connected up with the case.

Financial matters, fees for examination, etc., are not inquired into. Changes affecting the directorship, removal of laboratory to new location, or radical changes in technic, must be reported to the director of the State Laboratory. A change in directors cancels the certificate of approval.

Such was the system at the beginning, with no examinations of either director or technicians, no requirement of the medical degree for directors of clinical laboratories, no inquiry into the quality of their work in the clinical field. It soon developed that certain local public health laboratories could not be approved, although the local health officer desired that his laboratory be so recognized. In one particularly flagrant case, the health officer was unable for political reasons to make the changes recommended. It was clear that some form of compulsion was necessary. Another bill was drafted, and with the previous experience fresh in mind it was made very brief, very general, and limited in application to the public health laboratories. Following is the wording of the law which was passed in April, 1927:

MUNICIPAL AND COUNTY LABORATORIES

(Act approved April 29, 1927)

1. Any incorporated city, town, county, city and county or chartered city may, for the purpose of protecting the community against infectious disease, establish a bacteriological and chemical laboratory for the examination of specimens from suspected cases of disease and for the examination of milk, waters and food products.

2. The cost of establishment and maintenance of such laboratories shall be a legal expenditure from any incorporated city, town, county, city and county or chartered city funds that may be provided for disbursement under the direction of the health officer for the protection of public health.

3. All municipal and county laboratories established for the purposes herein set forth shall be subject to the approval of the state board of health.

The Board then passed the following set of resolutions for the enforcement of the act:

REGULATIONS FOR THE CONDUCT OF LABORATORIES

WHEREAS, Chapter 282, Statutes of 1927, requires the State Board of Public Health to supervise the bacteriological laboratories maintained by cities, cities and counties, counties and towns, the following requirements are hereby established for the operation of such laboratories:

1. The certificates of approval heretofore issued to laboratories on a voluntary basis shall be required to be in the possession of all city, city and county, county and town public health laboratories and no such laboratory shall continue to operate more than 5 days following receipt of notice of cancellation of any existing certificate, or of refusal of the board to issue a certificate in the first instance, except on temporary extension granted for cause by the Director of Public Health.

2. All skilled workers in municipal or county public health laboratories including bacteriologists, serologists, technicians or laboratorians shall possess, as the condition for such employment, certificates of proficiency issued by the State Board of Public Health.

3. Examinations either written or oral or both for the certificate of proficiency shall be held from time to time in such geographic centers of the state as will best suit the convenience of the majority of the applicants or as may be designated by the Director of Public Health.

4. Examinations for certificates of proficiency shall be under the supervision of the Chief of the Bacteriological Laboratory, State Department of Health.

5. Two grades of certificates shall be issued, one for bacteriologists and one for serologists. Workers possessing one certificate only shall not be permitted to engage in the activities covered by the other certificate, excepting under the immediate supervision of some one possessing the requisite certificate.

6. Health Officers of municipalities or counties possessing no laboratory, but who desire local laboratory service, may designate a local, private laboratory as the official public health laboratory of their territory, but any such designation shall be subject to the approval of the State Board of Public Health, and all skilled workers in such laboratories entering such contract shall hold the appropriate certificate or certificates of the State Board of Public Health.

Adopted by the California Board of Public Health in regular session on the 12th day of November, 1927.

This law with the regulations has accomplished its purpose, for although it has happened that a city has been reluctant to follow the demand of the board that an incompetent technician be displaced, the matter has never been carried to the courts, from which I judge that legal advice has been to the effect that the board has full power under the act.

As a preliminary to the inauguration of the certification of technicians, I visited all the approved public health laboratories in January, 1928, and gave an oral examination to the various technicians, and certificates of proficiency of either junior or senior grade were

issued. Thereafter, all examinations have been written, and have been held at advertised places and times. The system of calculating credits for the certificate is designed to encourage the taking of college courses in preparation for a laboratory career, but at the same time to take care of the practically trained person if he or she is really competent.

A recent graduate, even after the best of courses, still lacks something that can only be obtained by a season of practical experience which may however be rather short if taken in a laboratory doing a great deal of work, and in association with other good technicians. Therefore, the credit given for a college course is hardly sufficient, even with a good examination paper, to secure the senior grade certificate, which entitles the holder to engage in work unsupervised. Credit for practical experience, on the other hand, is not so great as to make it easy for a worker with only a couple of years' experience to get the senior certificate. One-half of the final credits are represented by the paper, one-third by experience, and one-sixth by relative capacity, so-called. The latter is arrived at in a personal interview.

On a basis of 100, 1 year's experience gives a credit of 40, 2 years' of 50, 3 years' of 60, 4 years' of 70, 5 years' 80, 6 years' 90 and 7 years' 100. The experience must be in a laboratory providing the proper kind and quality of experience for the certificate in view. Credit for college degrees is as follows: A.B. (or B.S.), with a major in a subject directly related to the field covered by the certificate, 3 years.

If, in addition to the academic course required by the major, a special advanced or postgraduate course approved for this purpose is taken, a credit of 5 years is given. If, in addition to this last, a period of 3 months is spent as a voluntary assistant in a laboratory particularly designated for that purpose, a total of 7 years or 100 per cent is given.

The basis for approval of clinical laboratories was at first the same as for public health laboratories. Later, it was required that the director of a clinical laboratory should have the M.D. degree, and it was further decided that the endorsement by the Board of Health of a clinical laboratory should be supported by actual knowledge of the qualifications of the technicians employed therein, since their supervision in some laboratories is not very close. The certificate of proficiency in biochemistry, including general clinical laboratory work was therefore established and also a certificate in parasitology.

Until recently, certificates have not been required of workers in laboratories that are under the direction of a doctor of medicine who is specializing in this field and devoting his whole time to the work.

After January 1, 1933,* however, all approved laboratories whether clinical or public health must display at least one senior certificate for each of the divisions of laboratory work that may be undertaken, and all persons on the staff, except medical directors and apprentices, must hold either a senior or junior certificate for the particular kind of work they are required to do.

SUMMARY

Since 1923 the California State Board of Health has issued to certain laboratories, both clinical and public health, certificates of approval.

In 1927, the possession of such certificates of approval was made compulsory for the official public health laboratories of the state. Among other requirements, an approved laboratory must employ certified technicians.

Certificates of proficiency are issued to individual workers after written examination, and special credit is given for college degrees and practical experience.

Certificates of proficiency are issued in 2 grades, junior and senior, and of 4 different kinds, to take care of the varying scope of work in different laboratories. The 4 certificates are in bacteriology, serology, parasitology and biochemistry, the latter covering all activities not included under the other 3.

* Resolution of the Board of Health, Apr. 11, 1931.

Medical Service in Public Schools in Turkey

A RECENT ministerial decree in Turkey provides, evidently for the first time in that country, medical service in secondary schools, which are attended by children mostly between 13 and 16 years old. Each pupil must be examined at the beginning of the school year and at least once more during the year, and a detailed report about each must be sent to the school principal. The examining physician is expected to decide whether the pupil is able to follow the studies without physical or mental harm. A health record is to be kept for every pupil. Pupils with certain defects are to be put on special registers and to be kept under observation. The school physician is also required to watch the sanitary conditions in and around the school building and to give to the school children frequent lectures on hygiene.—*La Législation Turque,* Editions Rizzo, Stamboul, 1931, N. I.

Important Factors in Directing the Health of the College Woman

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IN an article appearing in this *Journal*,[1] Dr. R. W. Bradshaw discusses the problem of student health as a new science. He stresses the unique opportunity in the student health service for research as offered in the field of health appraisal, disease prevention, nutrition, mental hygiene, and epidemiology. Already statistics exist and it may appear not unwise to probe somewhat deeper into the active life of the student, to determine if so-called natural unfitness occasioned by disturbances, considered minor and unalarming, are not of greater importance than is generally recognized.

The physical examination of students entering college serves to eliminate the physically unfit as well as to detect defects in those who matriculate, with the aim of providing remedial as well as protective measures. The records of this school show that it serves this purpose. However the absence of ill health does not imply that the condition of perfect health prevails. Symptoms which call for or even permit a physical consciousness on the part of an individual are often considered by students as legitimate excuses for the avoidance of exertion. These same symptoms however are regarded as natural in the developmental cycle and therefore are relegated to the inevitable and unalterable, no matter how distressing and devitalizing. Such notions are paradoxical.

A recent survey shows that specific factors incapacitate the woman student. The most common symptom of organic disturbance is headache. Studies of 225 girls, whose ages vary from 16 to 21 years, show that 78 per cent complain of headaches. The frequency varies from three times a week to twice a year. Eighteen per cent of these have headaches not less often than once a week. In 71 cases the doctors have named as many as 14 different causes. Eyestrain, nervousness, worry and stomach trouble are listed as main causes. In 41 cases, eyestrain has been diagnosed as the cause. In the other cases no attempt at diagnosis has been made. The cause is not eliminated and the girls supply their own remedies. Fifty-one per cent of these girls use aspirin, others use pills, laxatives, soda water and the like. Some

rest and discontinue study. The survey shows that a great deal of time is lost through headaches, despite the fact that regular habits of work, recreation and rest are enforced.

Another symptom which has been intensively studied by medical men is growing pains. It is recognized as a form of rheumatism caused by some focal infection, and statistics show that heart trouble is more commonly found in those whose history shows rheumatism. Dr. L. F. Barker and Dr. Norman B. Cole[2] state that "from 80 to 95 per cent of heart trouble in young people is due to rheumatic fever." They further state that the fleeting pains known commonly as growing pains were not until recently looked upon as manifestations of rheumatic infections. They stress the importance of examination, at regular intervals, of teeth, tonsils (which even when removed may grow again), nose, ears and the whole respiratory tract, to insure that they have not become focuses of infections.

The survey shows that 56 per cent of the 225 girls have their teeth examined twice a year, and 25 per cent once a year. The others do not do so at all regularly. Six per cent claim they never have had their teeth examined and cleaned by a dentist.

One hundred thirty-three girls had growing pains at some time. Of these 13 per cent still suffer from them. Our study further shows that 47 per cent of the 225 girls have had their tonsils removed but that in 6 per cent of those who had growing pains there is at present a recurrence of the pains. Of the 58 per cent of girls whose tonsils have not been removed 11 per cent of those who reported growing pains still have them. This shows that a smaller number of girls in the latter group, and a far greater number in the former have lost this symptom of focal infection.

Another form of organic disturbance lies in abnormal menstruation, where this period is of excessive duration, the pain unduly great, and the loss of vitality excessive. Doctors seem to agree that a normal woman should not be incapacitated for work during the menstrual period. The survey shows that this condition of normality is not universally true. Fourteen per cent of the girls remain away from classes regularly during some part of the period, while 34 per cent take drugs to deaden the pain. The majority have periods extending beyond the 5-day limit, and 63 per cent complain of pain. Twenty-four per cent do not have a definite menstrual cycle. About 21 per cent go to the infirmary for part of the time. We may compare this condition with a statement by Dr. Clelia Mosher[3]: "The best developed women who have come under my observation have a period of not more than 2 or 3 days, free from pain, and in many cases are at their maximum effi-

ciency every day in the month." Dysmenorrhea is thought to be caused by bad posture, poor muscular development, constipation, and chest instead of abdominal breathing. Dr. Mosher stresses the importance of exercise for the normal woman and that for her there should be no suffering and no incapacitating effect of this normal physiologic process.

Colds cause a greater loss of time and efficiency than any other sickness. Little is known about the prevention of colds other than that proper care of the body—that is, proper food, sleep, bathing, avoidance of prolonged exposure, absence of obstructions in nose and throat—increases the body resistance to it, and that care in preventing the spread of nose and throat secretions will lower the incidence. In a school where rules provide for the hygienic modes of living, and sanitary conditions prevent the spread of infectious material it may seem strange that as high as 34 per cent suffer from frequent colds and another 18 per cent occasionally do so.

The question arises as to the possible relation of dietary habits to this frequency of colds. Seventy-two per cent of girls are hungry between meals and eat more or less regularly between meal times. The majority gain in weight. Two measures for prevention of colds that are usually mentioned are avoidance of overeating, especially sweets, and constipation. This study bears out such relation by showing that a higher percentage of those who do not have colds have regular habits of evacuation; that is, of those who have occasional colds 20 per cent, and of those who have frequent colds 35 per cent suffer from constipation. Of those who do not suffer from colds only 16 per cent are constipated. Depression, headache and lassitude accompany attacks of constipation and thereby add to the menace from this factor.

It may be significant to compare the data relative to a group of 25 students with superior ability to 25 with inferior ability. Of the first group 32 per cent diet to reduce weight and of these 75 per cent are subject to colds. Of the second group 36 per cent diet to reduce weight and of these all are subject to colds. Of the entire 225 girls, 36 per cent diet to reduce weight.

It has been known that injudicious dieting, not regulated by a knowledge of the essential food elements nor the advice of a physician not only increases constipation but that the subsequent lowered resistance increases the susceptibility to tuberculosis.

The above is interesting from the standpoint that the school has an enviable record of good health when good health is interpreted as the absence of contagious disease. Rules of the school and its equipment and staff provide for regular and nourishing meals, sleep, proper

ventilation, supervised recreation, instruction in corrective gymnastics, and hygienic modes of living. At the same time the symptoms of physical discomfort as testified to by students themselves, by absences from classes while remaining in the infirmary, and by poor response at times on the part of students of good mentality call for further inquiry. Reference to the factors employed by students on their own initiative shows several interesting facts.

Thirty-two per cent use cathartics advised by physicians. We quote from Drs. Smiley and Gould[4]: "To begin the habitual use of laxatives and cathartics at college age is extremely unwise, because the great majority of cases of constipation occurring at that age are preventable or curable by means much more physiological." Fourteen per cent take a cathartic fairly regularly.

Sixty-eight girls take some kind of medicine for coughs, liver, colds, malaria, stomach trouble, heart, nerves, sinus trouble, dysmenorrhea and vitality. None take reducing pills but 36 per cent diet to reduce weight. One hundred and forty-nine girls take aspirin. Of these, 116 take it to kill headaches, 41 for menstruation, 20 for colds, 1 for hay fever, 13 to produce sleep, 3 for nerves and 2 for heart.

This survey indicates:

1. Only a few, i.e., 18 out of 225 girls, take tonics. Contrasting this condition with the general use of tonics 20 years ago we are forced to believe in the great physical improvement of the college woman. This improvement is due in part to the increased activity and the non-constrictive clothing of the modern woman. Dr. Mosher[5] says: "An extraordinarily close correlation was found between the fashion of dress and the menstrual condition of women. As the skirt grew shorter, narrower, and lighter in weight, and the waist grew larger, the functional health of women improved."

2. Since a large number of girls still suffer from, and are incapacitated by, headaches, growing pains, dysmenorrhea, and colds, there remains the necessity for earlier training in proper health habits than is at present provided for most girls, especially since these ailments are thought to be corrected by such means.

3. Since more time is spent in the infirmary by students with low I.Q. than by others, an intensive study of such students should be made in terms of their health habits.

4. A closer coöperation between educators and physicians as well as hygienists is advised in the attempt at explaining and correcting the factors which make for inferior mental response. In connection with the above findings resulting from the survey it was thought worth while to compare certain of the data furnished by students of high I.Q. (as measured by a psychological examination for high school graduates and college freshmen), with those of low I.Q. To obtain as great differentiation as possible, out of the 225 cases for which data were at hand, the 25 individuals with the highest score (276–180) were compared with the same number with the lowest score.

It was found that 48 per cent of the high score group never go to the infirmary while only 28 per cent of the low score group are this fortunate. Twenty-four per cent of the former group are subject to colds as compared to the 40 per cent of the latter. Forty-four per cent of the former suffer from headaches, while 64 per cent of the latter do so. Of the 36 per cent of the low score who diet to reduce, all are subject to colds and do not have daily defecation, while of the 32 per cent of the high I.Q. who diet only ¾ of this number have colds and only ⅝ fail of daily defecation. However, 90 per cent of those in the low score are hungry at other than meal times, a condition reported by only 65 per cent of those in the high group. Three times as many individuals of the low score use cathartics as do those of the high score.

In all phases of active interest the individuals with high scores show pronouncedly greater activity. More time is spent in study, in extra-curricular activity, in physical training, in leadership work by those in the high scores.

From this study which has taken into account habits of bodily care, modes of relaxation as well as the simplest factors in maintaining physical and mental health, there arises the problem of correlation of cause and effect in those students who enter college mentally inferior and handicapped by low vitality. Is this sluggish response to be related to maladjustment in early life? to focal infections? to the presence of intestinal parasites such as ameba? or to hookworm which produces the symptoms of anemia, malnutrition and mental retardation?

In conclusion, the authors wish to point out that the accepted standards of physical examination of the college student by medical men must be supplemented by closer examination of physiological processes and we must not be contented with the detection of defects in the mere mechanisms of the body.

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Public Health Organization*

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I HAVE travelled across the continent for the express purpose of bringing to the Western Branch the greetings of the American Public Health Association on the occasion of this, your second Annual Meeting. It is a long journey. Each time I take it I am reminded of the old story of the Englishman who spent several months seeing the varied sights of our great country. When about to sail for home he remarked that it did not seem at all surprising to him that Columbus had discovered America. The wonder would have been if he had missed it.

And each time I come I appreciate more fully than before that there is something which you people have out here which we miss in the East. I am not going to try to define it. Call it the pioneer spirit if you will. The fact remains that there is an enthusiasm, a spontaneity, a self-reliance which we of the more formal and older parts of the country recognize and envy in you, your loyalties, your energy, the keenness with which you go about your enterprises, such as this extraordinarily interesting and highly scientific meeting you are putting on here in Seattle at the moment. We need your contagious buoyancy. Yet we are not willing to admit that there may not be things we have back East which you need too. After all, this is one country, though a big one; its needs are more or less common needs; certainly its public health program is not a sectional matter but one which interests all parts of the land equally, and draws us all very close together in a common bond.

So as a representative of the parent organization I bring to you of the Western Branch most cordial greetings, heartiest congratulations on this splendid meeting, best wishes for your continued growth in strength and for your increasing influence for good on the health and welfare of the states of the Pacific Coast and the Rocky Mountain region. Back there in New York you may always count on our lively sympathy with your ideals and aspirations, and, what is more impor-

* Abstract of address at a dinner session at the Second Annual Meeting of the Western Branch, American Public Health Association, at Seattle, Wash., May 29, 1931.

tant, our constant readiness to be of every possible aid to you in this great common task upon which we are all engaged.

Tonight I propose to speak to you very briefly on the somewhat broad topic of public health organization. I shall confine myself to a limited phase of that topic, the relation of the official to the volunteer health organization. This is a peculiarly American problem, an outgrowth of our democracy, and would have little pertinence as a subject for discussion in a more centralized form of government.

Speaking broadly, there are just two forms of government, the despotic and the democratic. Of course they shade into each other but as examples of the rather extreme types we may take on the one hand the absolute rule of the small Communist party in Russia or the single despot, Mussolini, who now controls Italy; and on the other these United States of ours consisting of 48 empires loosely held together by a federal government whose impossible duty it is to interpret and satisfy the separate desires of 120 million rugged individualists. If a dictator decrees vaccination, even the conscientious objector bares his arm. But the free born American citizen, if he chooses, may bear the proud scars of smallpox throughout his independent life, a monument to his ignorance and blind self-conceit.

In a democracy, successful public health service must, of course, have legal sanction, but far more than on that it must depend on an educated public with which to work. Now at best public health officials and workers are limited in number. Their administrative and technical duties leave little leisure for the slow and painful process of educating public opinion. You are fully aware of the millions spent each 4 years in an attempt to make the voters of this country think republican or think democratic. There are no such resources at the command of the public health service, though it would be far more profitable if this money spent politically could be turned into the productive channels of health. In a democracy, then, the problem of the public health requires a different mode of handling from that possible to absolutism.

As an illustration you will perhaps permit me to speak of the National Tuberculosis Association as the volunteer health organization with which I am most familiar. It was started 27 years ago by a group of keen visioned public health physicians who recognized that the preventive medical knowledge even of that day was not beginning to be used because the people had not been taught to want it. Nor was the public health service equipped with means to do the teaching. A great popular educational program was needed and this the association undertook. Its first step was to make the organization one of

both physicians and laymen, a wise provision since the latter are sometimes more acceptable as teachers than are physicians of whose motives the public is inclined at times to be suspicious.

The scheme worked even better than its founders had hoped, and other similar organizations were developed. Now it must be remembered that in the beginning the idea originated from public health men and as an aid to the more rapid application of preventive medical principles. Like many a good sword it had two edges. In some localities the influence of the volunteer organization outran the resources of the official health department. Rather feeling its oats the volunteer association sometimes took a community leadership which should have been the prerogative of the health official. Not infrequently it was unreasonably critical rather than constructively helpful. The health officer quite properly resented this, and certain echoes of ancient and most unfortunate clashes are still audible today.

But speaking for one volunteer association I can assure you that those days are over. The value and success of a state or local tuberculosis association is measured at the national office in terms of how far it has integrated its program with that of the official department with which it is in touch. Just in proportion as it is recognized as an arm of the official service just so far it is approved. The health officer is sought as an active member of its Board of Directors. No enterprise is undertaken without his full knowledge and coöperation. His requests are commands to the full extent permitted by the limitations of the organization's resources. When the official department is equipped to carry on without our aid we transfer our duties and seek new ones. If the time comes when the resources of the official health service are adequate we will go out of business. The time is far distant however, as many a harried health officer will testify.

Before concluding I want to take up one other matter. Due to the fact that I have assumed the Acting Secretaryship of the A. P. H. A. while still Managing Director of the N. T. A. whisperings have arisen that an amalgamation might be foreshadowed between the two organizations. Nothing could be farther from the truth. It is impossible in the nature of things. Oil and water won't mix and in both form and purpose the two associations are striking dissimilar. The N. T. A. is primarily an operating organization. True we do some research work and hold an annual scientific meeting on the subject of tuberculosis. But our primary aim is the maintenance of our field operating service as an adjunct to the official health service. In general this is true of the other volunteer health associations.

On the other hand the A. P. H. A. is primarily a scientific society

composed of the professional workers in their chosen field. Its own members are doing the public health field service of the country under federal, state and local auspices. There is no call for the Association to undertake field operations. But there is every need for a central scientific body in this great profession to represent its interests before the public mind, to carry on a vast amount of research, to set and maintain standards of work, and to act as an expert appraiser of work actually being accomplished. Through its publications and its meetings it is the great clearing house for the newest thinking of the best minds in the profession in all its varied branches. Its future strength lies not in amalgamation with outside associations but in a far closer integration of its many complex branches, a broader realization that with its varied specialties it is still one great profession, one body of many parts, but a body that will survive only as a whole.

The American Public Health Association has an honorable history of now sixty years. Abroad it is looked upon as by far the greatest organization of its kind. Its strength lies in the united strength of the public health workers of America. Enrollment as a Fellow is the crowning recognition of professional achievement.

Chicago Claims of Low Tuberculosis Death Rate Challenged by Sydney, Australia

IN the City of Chicago *Bulletin Nos. 10, 11, and 12,* the claim is made:

For the first time in the history of Chicago, this city in 1930 achieved the lowest death rate from tuberculosis of any city in this country or abroad.

Following this is a list of American cities, headed by Chicago with a death rate of 66.61 per 100,000, representing a decrease of 20 per cent since the taking of office by ex-mayor William Hale Thompson.

Sydney, the largest city of Australia, with a population December 31, 1930, of 1,250,560, had a death rate of 51.30 per 100,000 from all forms of tuberculosis, and a death rate from pulmonary tuberculosis of only 46.08.

The general death rate for Sydney in 1930 was 8.71 per 1,000, the infant mortality rate (deaths of infants under 1 year) was 49.9 per 1,000 births. The average death rate for the previous 8 years was 8.94 per 1,000, the lowest record for any city in the world with a population of over half a million.—Letter to the Editor from J. S. Purdy, M.D., Metropolitan Medical Officer of Health, Sydney, April 20, 1931.

A Study of the Diets of Federal Prisoners*

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THE feeding of prisoners presents a peculiar problem; it is to supply food to a group of men, restricted in their activities, doing more or less work, with practically no opportunity to satisfy acquired food habits except by not eating. There is limited opportunity to purchase food, especially fruit, in some prisons. The difficulties of prison messing are those related to the psychological aspects of living. They are the problems of feeding men of varied food habits, arising from different standards of living, religious beliefs, and natural or acquired inclinations. With enough food, of the right kind (as public wards, prisoners should receive an adequate diet), the problems are those of sanitation and planning of the meals, preparation of food, and the method of service.

Food is one of the most important factors in a prisoner's life; it is one of the few things which have an element of variety in them. It would seem to be a wise prison policy to permit as great a variability as possible in the choice of foods, the planning of meals and the preparation of food, provided the results are accomplished through the labor of the prisoners on food of healthful quality and without resorting to the use of delicacies. Highly palatable foods like meat, and the food adjuncts, sugar, oleomargarine and jelly, are desirable when they bring about the consumption of staple foods such as bread and potatoes that do not possess flavor to a marked degree.

As a preliminary step in determining the adequacy of the prison diets as they now exist and to have information on which to base a method of rationing, we have obtained and calculated data on the food furnished the main messes at the United States penitentiaries at Atlanta, Fort Leavenworth, Leavenworth, and McNeil Island, and at the reformatory at Chillicothe, O. The quantities of the various

* Read before the Food, Drugs and Nutrition Section of the American Public Health Association at the Fifty-ninth Annual Meeting at Fort Worth, Tex., October 29, 1930.

TABLE I

NUTRITIVE VALUES AND COSTS OF THE AVERAGE FOOD CONSUMED PER MAN PER DAY DURING VARIOUS MONTHS OR QUARTERS IN CERTAIN FEDERAL PRISONS

	Weight lb.	Cost	Calories	Protein grams	Fat grams	Carbohydrate grams	Calcium grams	Phosphorus grams	Iron grams
Atlanta									
January	4.06	$.290	4,006	130	124	598	.602	1.62	.025
May	4.21	.286	4,031	124	118	589	.553	1.54	.029
Chillicothe									
2d Quarter	4.64	.375	4,741	159	172	625	.765	1.82	.028
3d Quarter	4.92	.400	4,807	154	173	647	.788	1.84	.030
4th Quarter	4.88	.405	4,907	159	152	700	.575	1.60	.030
1st Quarter	5.26	.405	5,348	185	144	830	.846	1.99	.036
January	4.88	.400	5,025	120	162	758	.641	1.50	.035
March	5.55	.417	5,259	208	131	837	.633	1.98	.036
Fort Leavenworth									
January	4.93	.352	4,197	153	151	552	1.10	1.89	.029
June	4.77	.331	4,942	136	209	625	.948	1.69	.026
July		.202	3,616	106			.519	1.41	.023
August			4,056	112			.530	1.46	.019
Leavenworth									
January	5.33	.355	5,005	162	182	702	.903	1.86	.029
June	4.77	.332	4,796	147	186	634	.966	1.87	.026
July	5.02	.303	4,869	147	187	648	.999	1.78	.036
McNeil Island									
January	5.06	.287	4,171	137	129	613	.868	1.55	.025
June	5.05	.311	4,288	130	145	478	1.093	1.79	.030

foods used were grouped according to the classification of Miss Hawley.[1] Calculations were also made of the caloric value, protein, fat, carbohydrate, calcium, phosphorus, and iron.

Typical data are contained in Tables I to III. In Table I data are presented for a winter and spring month, and in the case of Chillicothe for the four quarters of the calendar year. The results represent the food supplied, exclusive of ordinary waste resulting in preparation but not corrected for edible food not eaten. In well managed prisons the waste of edible food is about 0.1 lb. per man per day, in others it may be as high as 1 lb. per man per day. The figures given for cost of food represent what is usually designated as gross cost, i.e., the actual money spent for food plus the assigned values for products produced on the farm, especially milk, vegetables and pork. In Table II both gross and net cost are given; the net cost is the actual money expended.

Considered from an abstract nutritional point of view the prisoners received, in general, adequate amounts of protein, fat, carbohydrate, calcium, phosphorus, and iron. The figures given represent the average of the prisons. Some men eat less, some more. Men who work on night shifts usually obtain extra food, all of which is included in the figures given. A record of the number of men not eating meals shows that in some prisons as many as 500 men will miss a meal during the day.

Vitamins seem to be present in moderate amounts. In certain cases the calcium content tends to be low, and in most cases the quantity of phosphorus is about twice that of calcium. For certain domestic animals and the rat such a proportion is not particularly desirable. We do not know the best ratio of calcium to phosphorus for

TABLE II

COSTS AND AVERAGE WEIGHT OF DIFFERENT TYPES OF FOOD CONSUMED, AS POUNDS PER MAN PER DAY, IN CERTAIN FEDERAL PRISONS IN A PERIOD OF SIX MONTHS

	Cost—January to June 1930	1–2*	3	4	5	6	7	9	10	X
Atlanta										
Gross	$.271	.504	.997	.264	.450	.609	.257	.091	.832	.142
Net	.233									
Fort Leavenworth										
Gross	.346	.343	1.014	.257	.630	.849	.990	.069	.738	.279
Net	.328									
Leavenworth										
Gross	.355	.360	1.128	.320	.609	.957	.757	.107	.827	.256
Net	.329									
McNeil Island										
Gross	.283	.663	1.065	.089	.462	.786	1.089	.091	.500	.189
Net	.211									
Chillicothe										
2d Quarter	.375	.340	1.043	.292	.522	.943	.463	.201	.840	.171
3d "	.400	.506	1.115	.472	.645	.887	.424	.050	.819	.142
4th "	.405	.558	1.183	.385	.643	1.015	.132	.052	.915	.192
1st "	.405	.293	1.583	.337	.678	.980	.215	.067	1.125	.269

* Group 1. Better sources of Ca than of protein, P, or Fe.
2. All nutrients of about the same relative importance.
3. Iron more important than other three nutrients.
} Fruits, roots and leafy vegetables.
4. Calcium relatively low and other three nutrients high. Dried seeds.
5. Practically lacking in all four nutrients. Sugars and fats.
6. Calcium low, protein high, P and Fe intermediate. Meats.
7. Calcium relatively high, Fe low, protein and P intermediate. Milk and its products.
8. Protein and P relatively high and Ca and Fe low. Miscellaneous.
9. Calcium relatively low, protein high, P and Fe intermediate. Whole grains or similar products.
10. Protein relatively higher than the other three nutrients. Flour and similar products.
X. Condiments.

man. In milk calcium and phosphorus are present in approximately equal proportions. Assuming the proportion in milk to represent that desirable for the adult, there would seem to be a need for the addition of calcium to the prison diets to adjust to this ratio. A correction is not to be accomplished with milk, since it adds phosphorus at the same time; the correction appears to be through an increase of vegetables, the addition of calcium as a salt, or the reduction of meat and grains.

Meat plays an important part in the dietary of a prison because of its flavor and general appeal through which it helps to increase the consumption of the bland foods. The grains are a cheap source of energy yielding food. It would seem, therefore, to be advisable to increase the consumption of calcium through the use of vegetables and also the addition of calcium salts to the ration. The increased consumption of vegetables is at times a problem in itself. The men do not always eat them, due partly to dislike and partly to the method of preparation. An increased consumption is to be attained through skilled cooking or through combination with other foods as in stews or meat loaves.

TABLE III

COSTS AND AVERAGE WEIGHTS OF SELECTED FOODS CONSUMED, AS POUNDS PER MAN PER DAY, IN CERTAIN FEDERAL PRISONS OVER A PERIOD OF SIX MONTHS

	Cost Gross	Beets	Carrots	Onions	Tomatoes	Cabbage	String beans	Spinach	Potatoes	Beans Dried	Eggs	Oleo	Sugar	Beef	Milk	Evap. to Fresh	Flour	Macaroni
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		lbs.	lbs.
Atlanta	$.271	.028	.031	.192	.051	.111	.058	.013	.565	.131	.062	.069	.158	.341	.259	1/1.9	.793	.028
Fort Leavenworth	.346	.011	.028	.104	.048	.076	.047	.069	.763	.082	.096	.074	.338	.571	1.050	1/4.6	.686	.021
Leavenworth	.355	.004	.033	.098	.111	.072	.094	.072	.818	.052	.079	.084	.319	.444	.806	1/4	.769	.022
McNeil Island	.283	.041	.062	.126	.040	.041	.026	.047	.735	.033	.046	.034	.258	.521	1.069	1/480	.403	.009
Chillicothe																		
2d Quarter	.375	.029	—	.099	.006	.247	.044	.064	.645	.076	.116	.074	.281	.452	.588	1/1.2	.792	.031
3d Quarter	.400	.091	.020	.132	.010	.215	.050	.011	.740	.145	.091	.083	.378	.554	.564	1/0.8	.771	.019
4th Quarter	.405	.018	.032	.014	.126	.170	.139	.015	.762	.111	.095	.034	.449	.513	.238	1/0	.828	.036
1st Quarter	.405	.050	—	.092	.033	.083	.050	.032	1.297	.170	.049	.039	.467	.622	.341	1/0.3	1.001	.038

It is evident from a consideration of the data that the food consumption is high in certain prisons; a matter that is being adjusted at present. The condition in the Atlanta prison is an interesting one. For several years daily calculations of protein, fat, carbohydrate, and energy have been made and the daily ration adjusted to a standard. The present cook takes a great deal of interest in the results that are supplied to him by the storekeeper—the originator, we believe, of the plan. The results obtained are satisfactory with regard to the factors considered; there is a need for more vegetables and milk. The warden is developing his dairy herd to obtain more milk, and plans have been made to raise and can or store vegetables. This plan is present in all of the penitentiaries.

It is proposed to produce as many vegetables as possible on the farm of each prison and to can and redistribute material that can be grown at one prison to better advantage than at another. The condition at McNeil Island also appears to be satisfactory. This prison is in the fruit and vegetable country of the Northwest where vegetables and fruits can be grown or obtained cheaply. At the other prisons the cooking is generally good considering the facilities. The problems of adjusting the ration to a more economical basis are those of preparation, service, and possibly waste.

With the data on Leavenworth are included results for July and August, 1929. In August there was a food riot. These months were immediately following a period of enforced stringency in funds which necessitated a reduction of expenditures for food. Unfortunately this reduction was continued into the next fiscal year. There was apparently sufficient food; the difficulty lay as much in the planning of the meals as in any other factor—the meals of one week were just like those of the next. There was a difference in method of service at Leavenworth between January and June and July. A cafeteria service was in effect in the latter months, but it has not had a marked effect on food consumption or wastage. The data in Tables II and III indicate the distribution of the quantities of the various foods in the prisons, based on a 6 months' average. These figures permit a study of the variation in food habits and of cost.

The present method of rationing has been to set an arbitrary figure from year to year for the cost per man per day—based on the expenses of the past year and probable cost of food in the coming year. It is our intention to evolve a basis for rationing on the food required for a reasonably satisfactory mess under prison conditions.

Taken as a whole the prisoners in the federal prisons receive an adequate amount of food; corrections are desirable in relation to cal-

cium and in some cases in the amount of food eaten. The success of a prison mess rests, therefore, first on the steward, with his ability to plan and prepare palatable meals, to estimate the amount of food the men will eat, and to see that it is properly served; and second with the discipline of the prison which assures an even and adequate service and helps to reduce waste.

REFERENCE

1. Hawley, Edith. A Short Method of Calculating Energy, Protein, Calcium, Phosphorus, and Iron in the Diet, U. S. Department of Agriculture *Technical Bulletin No. 105*, Jan., 1929.

Turkey Child Welfare Provisions

THE general public health law of Turkey, which became effective November, 1930, and which is apparently the first of its kind in that country, contains a chapter on child health, and authorizes the Ministry of Health and Social Welfare to " take all measures " necessary for the promotion of child hygiene. Some of the measures prescribed in this chapter are:

1. Establishment of child health centers in cities with a population of over 10,000
2. Periodic physical examinations and mental tests of school children
3. Courses in child hygiene for girls in secondary schools
4. Supervision over boarded out children less than 7 years old
5. Protection by the State of children mistreated by their parents or guardians
6. Pecuniary aid to mothers having at least 6 living children

The chapter on industrial hygiene prohibits the employment of children less than 12 years old, night work for persons less than 16 years old, and the employment of expectant mothers on harmful work for 3 months before confinement; employment on ordinary work is prohibited for 3 weeks before and 3 weeks after confinement; persons less than 16 years old may not work more than 8 hours a day.

The law provides for the enactment of a Labor Code which will contain additional measures for the protection of workers.—Office International d'Hygiène Publique, *Bulletin Mensuel*, Paris, Apr., 1931, p. 598.

Rôle of the Pay-Cost Clinic*

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MOUTH hygiene activities were started in Cleveland, as in most places, purely as a charity. The object was to provide free dental service for poor children. The idea appealed and still appeals to the philanthropic instincts of members of the dental profession.

Charity is most commendable, but it rarely solves a social problem. Giving people a chance to provide for themselves is much more likely to solve the problems of society.

Cleveland was one of the early participants in the movement to provide free dental service for children. It was more than 30 years ago that the idea assumed material form. Large groups of school children were examined and 97 per cent were found to have diseased teeth. Then came a wave of installing dental outfits in schools and institutions for relief, repair and restoration of children's teeth. This service reached only a very few, of course, but elicited much favorable comment from teachers and others concerned.

Then came a period of publicity and propaganda exalting the value of tooth brushes, tooth pastes, and dental care for children. It was based on the conspicuous improvement in mental agility—not ability—in conduct, interest, and health of the children which so frequently follows the removal of septic mouth conditions. Elaborate programs of tooth brushing, etc., were developed here and there and reports were soon forthcoming of marked improvement in the children under care, treatment, and observation.

When the charitable instincts of the dental profession had been drawn upon to the limit, efforts were made, often successfully, to place the responsibility for the dental service upon school boards and health departments. This accomplished, the activity became one of public health rather than a charity, which always involves an entirely different viewpoint and mode of attack. It was observed that the cost was 5 times as much to care for 13-year old pupils as for those 6-years old. Therefore, a given sum could care for 5 pupils at the age of 6 and pre-

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vent their becoming the 13-year old problems. This idea of service for 6-year olds was established in the Cleveland schools nearly a decade ago. With the money available, it was possible to care for about 26 per cent of the 6- and 7-year old pupils in first grade. It was hoped and expected that parents would see that the care of children's teeth was continued after they were once put into good dental condition.

Some years of experience established the fact that little was being done for the children in the school clinics except those of 6 or 7 years. So large a turn-over is experienced from first to sixth grade that those cared for as first graders are almost entirely lost sight of when we come to examine the sixth grade before sending them into Junior High School. Realizing that it was not practical to secure board of education or health department support sufficient to provide care for teeth of all pupils in all the schools, some other program had to be developed. An analysis of the problem made clear that we had some 78.9 per cent of public school elementary pupils needing attention while 18 years earlier, 97 per cent needed attention. The difference was wholly in the number of cases that had received complete dental care and that almost entirely at the hands of our school dentists. In other words, we had met, through all agencies, only about 20 per cent of the problem.

During the past decade, we have preached milk, fresh fruits, green leaves, and vegetables. While here and there we think we see improved conditions as the result of diet, the extent of improvement among the city's child population is not encouraging. Experimentally, one can get results with proper diet, air, light, rest, exercise and water. Why do we not secure the same results when applied to a community?

Comish in *Standards of Living* throws some light on the matter of income and living standards of the wage earning population of the United States. He shows that 16.7 per cent of families live on a poverty standard or $1,000 per annum or less; 34.84 per cent live on a minimum subsistence, or $1,600 per annum or less. In other words, 50 per cent are financially embarassed all the time. He shows that 44.64 per cent have from $1,800 to $4,800 per year per family. These, he says, live on a health and comfort standard, but how many of you think a family of 5 can live in comfort on $1,800 a year? There remains a group, 3.82 per cent, who live on $5.000 and up per family. These, Comish says, live in luxury.

It has long been realized that some 20 per cent of the people employ dentists for other than relief of pain. It is generally accepted that approximately 10 per cent are too poor to pay anything for medical and dental service. This leaves 70 per cent who need and want

dental service but are probably not able to pay the usual professional fees. Efforts have been made to refer children to private dentists. It is possible to send about 50 per cent to the dentist, that is, 50 per cent of the parents will say they will take the children to the dentist, but upon checking up we find that but 40 per cent have had service and 60 per cent have not. Analysis indicates that the fundamental reason for the failure to secure dental services for children is economic. There are no surplus funds for such expenses. In other words, the same 20 per cent that have been patronizing dentists will provide dental care for their children and the rest go without. We then have 70 per cent who need, but cannot afford private dental service and should not be given free service. How are these children to be cared for?

There are two urgent problems confronting us: those having badly diseased teeth which require extraction, involving about 40 per cent of the children, and another group of 78 per cent who need fillings, or fillings and extractions. The most urgent need seems to be for the removal of septic teeth, since these are an immediate menace to the child's health and happiness.

After much discussion, it became possible in Cleveland to have established 3 extraction surgeries for children on a "Pay-Cost" basis. "Pay-Cost" is a term coined to mean the entire cost of overhead, depreciation and interest on investment, supplies, maintenance and personnel, that is, all the cost of service under organization and system.

It has been found possible to extract teeth for children in these institutions for $1.75 per case—not per tooth. The average case requires the extraction of about 3.7 teeth. This fee, $1.75, includes the nitrous oxide anesthesia and the after care. Such service requires for a clinic session of 3 hours, the following staff:

1	Director	Dentist	
1	Extractor	"	
1	Anesthetist		
1	Supervisor (relief anesthetist)		
1	Admitting Clerk		
1	Preparation Nurse		
2	Surgery Nurses		
1	Surgery Orderly		
1	Recovery Room Nurse		
1	Sterilizing Room Assistant		
1	Janitress		
1	Janitor		

All the staff are paid reasonable compensation. They are usually on duty about 4 hours for a 3-hour clinic.

It should be realized that this type of clinic is for service only, not for teaching in connection with a school of dentistry or medicine. Strict asepsis must be and is observed. Thorough organization and attention to details are necessary to effect the economies that make possible a pay-cost service for extraction at $1.75 per case. The nor-

mal capacity of these clinics is 60 per morning; however, the number often reaches 70 and 80.

Cleveland has 166,000 pupils, in kindergarten to ninth grades inclusive, under organized care. Since 40 per cent of these need extractions, we have 66,400 pupils to care for. As shown above, we may hope for 20 per cent or 13,000 to be cared for by private dentists and 10 per cent or 7,000 in free clinics. This leaves 46,000 to be cared for in pay-cost clinics.

The 3 institutions can care for about 7,200 each, or, collectively, 21,000 or 22,000. In 1929, the 1 such clinic then established cared for 7,290 cases. The 3 now in operation can meet the needs fairly well; that is, they can care for one-half those needing service, which probably is all the school staff can handle. The next step is to provide pay-cost filling service for the great 70 per cent of children so as to save the teeth.

What relation has all this to national problems and nutrition?

We have described a method that has worked in one city and can easily be applied in any other. It is successful because it brings the cost of service within the means of the great mass of self respecting people of meager earning ability. It brings opposition from many sources, of course, but whatever one does provokes adverse comment. The relation to nutrition is just this. We have taught the newer knowledge of nutrition but find meager results. Why? Because it costs money to have fresh, clean air to breathe. It costs money to have exercise and rest under a health promoting environment, and 70 per cent of the people have not enough money to buy all these desirable factors for the promotion of health, including sound teeth.

The immediate problems confronting us are teeth decayed and aching. The needs of today must be cared for while we continue to teach ideas that will make for improvement tomorrow.

The "Pay-Cost Clinic" is the most helpful agency yet employed.

Comparative Dietary Studies of American Children of Nursery School Age*

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THE preschool child has, in late years, received perhaps more than his share of attention. While much of this has been directed toward a study of problems relating to nutrition, very little of it has been devoted to the collection and interpretation of statistical material on food intake. Such investigations are called dietary studies and form, in the main, the basis for our present dietary standards.

In recent years, dietary findings in regard to protein and minerals have been considerably supplemented by balance experiments in which attempts have been made to find the intake of these substances that will bring about the best retention in the body. Also, calorimeter experiments have reinforced the material relating to calories. At best, however, the data upon which our dietary standards for children are based are none too large in amount or too convincing in nature. Nevertheless, these standards, even though unsatisfactory, provide us with criterions for judging the physiological efficiency of a diet, either of an individual child or of a group. Moreover, comparison of the adequacy of the diets of different groups may be made on the basis of the amount and kind of variation from established standards.

It was primarily with the idea of obtaining data on which a comparison of the adequacy of the diet of Mexican, Negro and American children of preschool age might be based that the present investigation was undertaken. In addition, by using figures obtained from children of normal weight only, averages have been secured that may be compared with standards already in existence. Lastly, an attempt has been made to relate the dietary findings to the physical condition of the various groups studied.

The material on which this study is based consists of records of food intake, covering a period of 1 week, for 50 Negro, 50 American

* Read at a Joint Session of the Food, Drugs and Nutrition, and Child Hygiene Sections of the American Public Health Association at the Fifty-ninth Annual Meeting at Fort Worth, Tex., October 27, 1930.

and 75 Mexican children. The Negro and American studies were made in Austin, Tex., while the Mexican material was obtained partly from Austin and partly from San Antonio. Careful supervision over the records was exercised in order to obtain as great a degree of accuracy as possible. The calorie, protein, calcium, phosphorus and iron content of the daily diet was computed for each of the 7 days and the average per day for each child obtained. Averages were also calculated for each age and sex group of the various nationalities, and comparisons made on the basis of (1) differences in these averages, (2) the variation of the average from the standard, and (3) the percentage of individual diets below the standards in each of the groups. Vitamin content of the diet of the different groups was judged on the basis of the amount of food, rich in the various vitamins, contained in the diets.

TABLE I

AVERAGE DAILY PROTEIN INTAKE IN GRAMS PER KILOGRAM OF BODY WEIGHT OF MEXICAN, NEGRO AND AMERICAN CHILDREN OF PRESCHOOL AGE

Boys	*American*	*Negro*	*Mexican*
2–3 yrs.	3.24	2.89	2.60
3–4 yrs.	2.46	2.70	2.40
4–5 yrs.	2.19	2.53	2.18
Average	2.63	2.37	2.39
Girls			
2–3 yrs.	2.53	2.76	2.70
3–4 yrs.	2.31	2.45	2.62
4–5 yrs.	2.25	2.15	1.89
Average	2.36	2.45	2.40

The groups were fairly evenly divided as to sex, but the different ages were unevenly distributed, and in no case was the age group large enough for the average figures to be more than indicative.

Table I gives comparative results for the protein intake. The average amount of protein consumed daily by preschool children of the 3 nationalities studied was between 2 and 3 gm. per kg. of body weight. This is the amount advocated as desirable by many investigators. There was no great difference in the averages for the nationality groups, but in every case the younger children received a larger amount of protein per unit of body weight than the older ones, and the boys more than the girls.

In spite of the fact that average consumption figures are within the standard, a study of the individual dietaries showed that less than 2 gm. of protein per kg. of body weight was taken by 20 per cent of

the American children, 26 per cent of the Negro children, and 18 per cent of the Mexican children. There was apparently no great difference in the percentage of children suffering from protein deficiency in the 3 nationality groups. Similar figures for age and sex groups showed that a larger proportion of the older groups than of the younger and of the girls than the boys received insufficient protein. This tendency was especially marked among the Mexicans.

TABLE II

AVERAGE DAILY CALORIE INTAKE PER KILOGRAM OF BODY WEIGHT OF MEXICAN, NEGRO AND AMERICAN CHILDREN OF PRESCHOOL AGE

Boys	*American*	*Negro*	*Mexican*
2–3 yrs.	91.80	83.30	78.32
3–4 yrs.	74.19	82.36	73.40
4–5 yrs.	66.80	74.85	61.70
Average	77.60	80.16	71.14
Girls			
2–3 yrs.	78.06	79.54	74.42
3–4 yrs.	74.05	72.46	74.75
4–5 yrs.	65.52	65.48	51.12
Average	72.54	72 49	66.75

Comparative data on calorie intake are given in Table II. Here considerable variation in the nationality groups, as well as in the age and sex divisions within these groups, was shown. The Mexican children had a lower calorie intake than either the Negro or American. Girls, in all cases, had a lower intake than boys. As would be expected, there was a decrease in the calorie intake per unit of weight with age.

The averages were from 12 to 25 per cent below the Holt standards, which were selected for use here because they are stated on the basis of weight, thus giving more definite criterions from which to reckon deviations than those on an age basis. These standards are per kg. of body weight: for 2–3 years, 92.4 calories; for 3–4 years, 88.4 calories; and for 4–5 years, 85.6 calories.

In an effort to avoid overemphasis of calorie deficiency, it was decided to consider as inadequate only diets that were more than 10 per cent below Holt's standards. On this basis, calorie inadequacy was present in 52 per cent of the American, 62 per cent of the Negro, and 66 per cent of the Mexican dietaries. It was also found that only in the Mexican group was the percentage of calorie deficiency larger for the older than the younger children, but that in every group this deficiency was more marked among girls than boys.

Of the minerals necessary for the building and regulating functions of the body, only calcium, phosphorus, and iron are usually considered in a dietary study since it is thought improbable that a diet furnishing a sufficient supply of these elements, which are necessary in large amounts, will not also provide enough of the minerals which the body needs in only small quantities. Table III gives the average daily intake in grams for calcium, phosphorus and iron.

A study of these averages showed that the Negro and Mexican intake of calcium was not much more than half that of the American. This large difference was not apparent in either phosphorus or iron,

TABLE III

AVERAGE DAILY MINERAL INTAKE IN GRAMS OF MEXICAN, NEGRO AND AMERICAN CHILDREN OF PRESCHOOL AGE

	American	*Negro*	*Mexican*
		Calcium	
Boys			
2–3 yrs.	.9756	.6021	.6224
3–4 yrs.	.9269	.5678	.6103
4–5 yrs.	.8492	.5760	.4868
Average	.9172	.5819	.5731
Girls			
2–3 yrs.	.7968	.6422	.5199
3–4 yrs.	.6721	.5893	.5280
4–5 yrs.	.8534	.4657	.5095
Average	.7741	.5657	.5191
		Phosphorus	
Boys			
2–3 yrs.	.9912	.8030	.9489
3–4 yrs.	.9522	.8344	.8407
4–5 yrs.	.9871	.7719	.8509
Average	.9768	.8031	.8801
Girls			
2–3 yrs.	.7804	.7547	.9913
3–4 yrs.	.7560	.7214	.9531
4–5 yrs.	.9101	.6808	.7560
Average	.8155	.7189	.9001
		Iron	
Boys			
2–3 yrs.	.00711	.00700	.00512
3–4 yrs.	.00598	.00712	.00615
4–5 yrs.	.00797	.00706	.00538
Average	.00702	.00706	.00555
Girls			
2–3 yrs.	.00575	.00725	.00480
3–4 yrs.	.00588	.00677	.00489
4–5 yrs.	.00676	.00585	.00434
Average	.00613	.00662	.00468

the phosphorus intake of the American group being only slightly higher than either the Negro or Mexican, and iron intake slightly lower than that of the Negro, but considerably higher than that of the Mexican. In all 3 groups, the average intake of girls, for each of the minerals, was considerably lower than that for boys. There was a general tendency for the calcium and phosphorus intake to be highest for the youngest group. This propensity was not found in iron.

According to Sherman[1] and other investigators, the large demands of the growing child for calcium and phosphorus make necessary an intake of at least 1 gm. per day of each of these minerals. No such definite statement as to iron requirement is available, but Rose[2] suggests that a child needs at least as much iron per unit of calorie requirement as an adult, i.e., 0.0005 gm. of iron for every 100 calories. On the basis of the above mineral standards, and considering as inadequate only diets that were more than 10 per cent below the standard, it was found that calcium inadequacy existed in 50 per cent of the American, 90 per cent of the Negro, and 96 per cent of the Mexican dietaries; phosphorus in 38 per cent of the American, 74 per cent of the Negro, and 64 per cent of the Mexican dietaries; and iron in 50 per cent of the American, 32 per cent of the Negro, and 66 per cent of the Mexican dietaries.

In a general way it may be said that the percentage of diets deficient in calcium and phosphorus was almost twice as great for Negroes and Mexicans as for Americans, but the larger percentage of calcium inadequacy in the American diets makes the calcium deficiency of the Negro and Mexican diets much more outstanding than that of phosphorus. Negro children were apparently much less likely to suffer from iron deficiency than either American or Mexican, the latter faring worst of all in this respect.

The percentage of calcium inadequacy was found to be fairly evenly distributed through the various age groups in American and Negro diets, but to be much greater among the older than the younger Mexican children. The distribution of iron and phosphorus deficiency seemed to be fairly even in the various ages for all 3 groups. Again, in all groups a larger percentage of girls than boys suffered from deficiency in all 3 of the minerals.

In the American group the mineral deficiencies were mostly the result of calorie deficiency; i.e., there were very few cases of adequate calories accompanied by inadequate minerals. In the other groups, however, adequate calorie intakes were found along with inadequate calcium or phosphorus or both. The difference in the calcium content of the diets of the 3 groups is to be explained almost entirely on

the basis of the difference in the amount of milk used. The average amount of milk taken by the American children was slightly more than 2½ cups per day, while for both the Negro and Mexican groups it was somewhat less than 1½ cups. The low figures for iron inadequacy in the Negro group are probably explained by the wide use of "greens." Greens appeared on only 3 of the Mexican diets.

Taking into consideration the 5 food factors discussed, protein for every group was the one least likely to be deficient. While calcium was outstandingly deficient in Negro and Mexican diets, American diets were no more likely to be inadequate in this than in calories or iron. Calculation of the average number of deficient factors for each group shows this to be 1.8 per child for the American, 2.6 for the Negro and 3.4 for the Mexican.

In order to obtain figures that might be compared with existing standards, the average intake for each of the 5 food factors for children of normal weight only was calculated. The results showed, briefly, that the averages for protein and iron were within the standards, but that the average calorie intake was from 10 to 15 per cent below, the average calcium intake approximately 33 per cent below, and the average phosphorus intake almost 20 per cent below standards. The maintenance of weight does not, of course, mean the maintenance of health.

An attempt will be made to discuss and compare the vitamin content of the diets on the basis of the amounts of vitamin-rich foods contained therein.

For vitamin A, milk, butter, egg yolk and leafy vegetables are depended upon. In none of the diets was there enough milk to furnish, unsupplemented, a sufficient amount of this vitamin, but the Mexican and Negro diets required much larger supplements than the American. Butter, however, was used in larger quantities in the American than in either of the other groups. A study of the diet of Mexican families showed that a low income group used only ¼ lb. per week per family, and a higher income group only ½ lb. Eggs were used in about equal amounts by Negro and American children, but much less than once a day, which is the prescribed amount. They are evidently widely used by the Mexicans, as the study referred to above showed from 2 to 3 eggs per family daily.

The "greens" used by the Negroes helped to supplement their diet in regard to this vitamin, a supplement lacking in the Mexican diets. Fifty per cent of American children had been given cod liver oil with more or less regularity, thus enriching their diet immeasurably in vitamin A. Cod liver oil therapy was practically unknown among both

the other groups. On the whole, it seemed that the diet of American children ranked first in regard to A, that of Negroes next, and Mexicans last.

It is thought that none of the groups were so apt to suffer from B as from A deficiency, but that a wider variety of fruits and vegetables and the use of larger amounts of milk and whole grain rather than milled cereals gave the American diets a better content of B than either the Negro or Mexican. The Mexicans use large amounts of cereal, but to a great extent they have substituted white flour for whole corn products which in the past were so extensively depended upon. This practice is undoubtedly cutting down their B supply. Neither Mexicans nor Negroes used whole wheat to any appreciable extent. Not one of 144 Mexican families included in a dietary study bought whole wheat flour or bread during the week which the study covered. Whole wheat bread appeared on only 2 of the diets for Negro children, but was used almost exclusively in the American diets. To offset a possible B deficiency, there was the wide use of beans, potatoes and tomatoes, all good sources of this vitamin, by both Mexicans and Negroes.

Fresh fruits and raw vegetables are splendid sources of Vitamin C. These appeared with much more regularity in the American than the other diets. However, spinach, cabbage, and tomatoes were present with considerable frequency in the Negro diets and potatoes were a staple. Potatoes and tomatoes were also widely used by Mexicans as were onions, another good source of C. In spite of the restricted nature of the Negro and Mexican diets, it is thought that they contained fair amounts of C, and that there was less danger of a lack of this vitamin than of either A or B.

Unless obtained by special therapy, the supply of vitamin D depends largely upon sunshine. Whether there is any difference in the amount of sunshine to which the children in the various groups are exposed is not known. It is possible that Negro and Mexican children are in the sunshine for longer periods than American children, and that, because of less clothing, the ultra-violet rays have better access to their bodies. However, greater pigmentation of the skin might be expected to offset this advantage. Since special therapy was employed to provide a large proportion of American children with this vitamin, i.e., cod liver oil or viosterol, they were probably better supplied than children of the other groups.

So little is known about the food content of G that no effort will be made to compare the diets in regard to this vitamin.

Summarizing briefly, it may be said that the group of American

preschool children, although far from being supplied with adequate amounts of the necessary food elements, were less inadequately nourished than the children comprising the Negro and Mexican groups, and that Negro diets were somewhat more adequate than Mexican. There was a fairly definite tendency, especially marked in the Mexican group, for the younger children to be better fed than the older, and a decided tendency for boys to be better fed than girls. The most outstanding inadequacies were those of calcium and vitamin A in the Negro and Mexican diets. These are probably to be accounted for on the basis of the small amount of milk used. A considerable number of the children were maintaining weight on diets that were appreciably below standard in one or more factors.

Environment and diet are so interrelated in their effect upon the physical condition of the child that caution must be used in attempting to separate them as causative factors. It is felt, however, that this study would be incomplete without some attempt to point out probable relationships, or the lack of them, between the calculated dietary deficiencies and the physical conditions existing in the groups studied.

Weight for height and age, though far from a perfect index, is often considered the best single criterion of a child's health, and calorie intake is thought to be more directly related to the maintenance of normal weight than intake in any other factor. From the data on calories already given, a large percentage of underweight in each of the groups might be expected. Using the Woodbury standards and considering more than 7 per cent below normal as underweight, it was found that 96 per cent of the Mexican, 94 per cent of the American and 66 per cent of the Negro children were maintaining normal weight. Not knowing how to explain this disconcerting result it was decided to obtain underweight statistics on larger groups of children, in order to see if the above percentages were representative. Data on 80 American preschool children that had been admitted to the nursery school connected with the university in Austin showed 17 per cent of them to be underweight, and the physical examination records of 200 Mexican preschool children in San Antonio showed 32 per cent of underweight. No data on a larger Negro group were available.

In view of the effect of mineral deficiencies on the growth of the skeleton, it was thought interesting to compare the percentages below, within and above normal height for age in the 3 groups. This was done by using the Merrill-Palmer figures which give a normal range of height for age. In the Mexican group 86 per cent of the children were below this range, 14 per cent within, and none above; in the Negro group 27 per cent were below, 46 per cent within, and 27 per cent

above; in the American group 17 per cent were below, 43 per cent within, and 40 per cent above. Many other factors than diet, notably heredity, are important in determining height, but it is not impossible that mineral deficiencies were to some extent responsible for the above differences.

Since calcium deficiency was so outstanding in the Negro and Mexican diets, it was obviously logical to look for physical results of this inadequacy. However, present-day literature on the subject does not make very clear what results are to be expected from low calcium intake, unaccompanied by vitamin D deficiency. Calcium, vitamin D, and vitamin C are all said to be necessary for the production of good teeth. No data on teeth are available for a large group of Texas-American children, but a survey of Kansas preschool children was made by Rypins,[8] who reported that of 1,197 children, 27.2 per cent had dental caries which averaged over 1 decayed tooth for each mouth examined, and almost 4 decayed teeth for each of the carious mouths, and that of the teeth erupted, 6.3 per cent were carious. Comparable figures for 200 Mexican children show that 41 per cent of the children had decayed teeth with an average of 1.2 decayed teeth for each mouth examined and 3 decayed teeth for each of the carious mouths. Of the teeth erupted, approximately 7 per cent were carious. If comparison between these 2 groups is valid it shows a larger percentage of bad teeth in the Mexican group. No data on a group of preschool Negro children are available, but Sterling[9] in a study made in Atlanta, Ga., of 5,000 Negro children of school age, found that only 35 per cent had carious teeth. He states that this figure compares very favorably with figures for white children.

The extent to which "signs" of rickets appear in the carious groups might be taken as indicative of differences in vitamin D supply. Well developed cases of rickets seldom appear in this climate, but a definite number of children show signs of early rachitic lesions, such as enlarged wrists and ankles, Harrison's groove, depressed ensiform, etc. Physical examinations of 200 Mexican preschool children showed that 19 per cent had rachitic signs other than flat-feet, bow-legs and knock-knees, while only 7 per cent of the 75 children admitted to the University Nursery School showed definite signs of rickets. The percentage of flat-feet, bow-legs and knock-knees was large in both groups, but these abnormalities, in the absence of other signs, are not considered as definitely indicative of rickets. Again no data on a Texas-Negro group are available.

Lastly, marked deficiency in vitamin A was found to be characteristic of Negro and Mexican diets. Slow growth and a lack of re-

sistance to infection have been found to result from a low intake of this vitamin. Lowered resistance to infection is characteristic of Mexicans and Negroes, both children and adults. Fully twice as many Mexicans as Americans die of tuberculosis, and the percentage of Mexican children under 2 years of age that die from diarrhea, presumably caused by infection, is more than 4 times that of American; above 2 years of age it is twice as great. These differences are no doubt partly due to increased exposure to infection, but it is entirely possible that low vitamin A intake, together with other food deficiencies, is largely responsible.

Although the data on physical condition are too inadequate to admit of a striking demonstration of the relationship of diet to physical well-being, it is thought that evidence of such relationship is not entirely lacking.

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NEW MONTREAL HARBOR BRIDGE OVER ST. LAWRENCE RIVER SHIP CHANNEL

Effect of Diphtheria Immunization upon Case Incidence and Mortality*

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THE control of diphtheria in Kansas is a problem that has to do with 1,852,114 individuals who are irregularly distributed over an area of 81,774 square miles. Thirty-three per cent of the population is urban and 67 per cent rural. The population in age groups under 20 is as follows:

TABLE I

Under 1 year	30,684
1–4 years	154,950
5–9 years	185,047
10–14 years	180,557
15–19 years	170,840
Total	722,078

For 1920, before any immunization work was started, 84 per cent of the reported cases of diphtheria occurred in the age group below 20, and 16 per cent above. The percentages under 20 are shown in Table II.

TABLE II

Under 5 years	17.0 per cent
5–9 years	37.7 per cent
10–14 years	21.2 per cent
15–19 years	8.1 per cent
Total	84.0 per cent

In 1921, Kansas had the most severe epidemic of diphtheria in its history; 7,849 cases were reported with 382 deaths.

The first toxin-antitoxin administered on a county-wide basis was in Wabaunsee County with a rural population of 10,710. The largest village is Alma, the county seat, with a population of 771. Diphtheria being epidemic in this county, the county commissioners, who are the county board of health, agreed to furnish the toxin-antitoxin to each

* Read before the Epidemiology Section of the American Public Health Association at the Fifty-ninth Annual Meeting at Fort Worth, Tex., October 29, 1930.

school district free if the school districts would employ physicians to administer the 3 treatments. No charge was to be made to the parents. This plan was completed successfully and 2,500 children were given toxin-antitoxin during the fall of 1921. In counties and cities having full-time health departments, 7,500 children were given toxin-antitoxin early in 1922.

The solution of any public health problem is more difficult and prolonged in proportion to the number of individuals involved and the size of the area over which they are distributed. Its successful and complete solution is possible only when funds and personnel are adequate. Unfortunately, prior to 1926 the Kansas State Board of Health had insufficient funds and personnel to make progress in the immunization of the children of the state.

In 1926, the board adopted the slogan, "Diphtheria Must Go." The previous year immunizations were confined, in most cases, to cities and counties having full-time health departments. The State Medical Society at its annual meeting in 1926 by resolution indorsed the diphtheria prevention program of the State Board of Health and requested component county medical societies to use all ethical measures in the furtherance of the immunization of the susceptible age groups. With the results of the Wabaunsee county-wide immunization of the school population in 1921 showing not a school child had developed diphtheria since that date, and with increased appropriation by the legislature for the purchase of toxin-antitoxin for free distribution to county boards of health, contact was made with local medical societies requesting their assistance in the demonstration of the value of the preventive treatment. The State Board of Health was to furnish the toxin-antitoxin and the physicians were to administer the treatments without cost to the parents.

During 1926 and 1927, there were 33 county medical societies cooperating in these free immunizations, with the result that 70,170 school children were immunized. Twenty-one additional counties have furnished, through their health departments, free immunization to every child whose parents signed the request slips for treatment. At present, the plan which has shown the best results is for the school district to employ a physician to administer the treatment at the school building, the state furnishing the material. Parents in the district are notified to bring their preschool children to the building on the day of the free immunization. Under this plan, we reach the rural preschool child.

The number of children treated with toxin-antitoxin by years is given in Table III.

TABLE III

1921	2,500	1926	30,000
1922	7,500	1927	75,000
1923	1,000	1928	40,420
1924	10,000	1929	59,580
1925	8,000	(Six mo.)—1930	10,000
Total immunized under coöperation plan			244,000
Total immunized by private physicians			100,000
Total			344,000

To determine the number of children immunized by physicians in private practice during the previous 7 years, in September, 1928, a questionnaire was mailed to each physician in the state. Slightly more than 18 per cent replied, their total of immunizations being approximately 20,000. If the remaining 82 per cent immunized a proportionate number, the total would be in excess of 100,000. The past year has shown a large increase in the number of parents who are having the family physician immunize the baby at 6 months of age.

Adding the 100,000 to our organized immunization group gives a total of 344,000 children who have received toxin-antitoxin, approximately 275,000 of whom were treated during the past 5 years.

The results of 10 years of educational work in the prevention of diphtheria are shown in Table IV comparing the two 5-year periods.

TABLE IV

DIPHTHERIA CASES AND DEATHS—1920–1929 INCLUSIVE

Year	Cases	Deaths	Year	Cases	Deaths
1920	4,375	262	1925	1,101	71
1921	7,849	382	1926	903	49
1922	4,089	288	1927	1,073	75
1923	2,625	151	1928	793	61
1924	1,707	88	1929	919	68
Totals	20,645	1,171	Totals	4,689	324

Note there has been a reduction of 77 per cent in cases and 72 per cent in deaths as compared to the previous 5 years.

In the first 5-year period, 21,000 children were given toxin-antitoxin and in the next 313,000 children received the treatment. The results of these immunizations are apparent to any person.

In the *Weekly Bulletin* of the City of New York Department of

Health, June 30, 1930, in "The Diphtheria Campaign to Date," we note the cases and deaths for 10 years:

COMPARATIVE CASE FATALITY RATE FOR NEW YORK CITY AND STATE OF KANSAS

	New York	Kansas
1920	5.9 per cent	4.9 per cent
1927	5.3 " "	6.9 " "
1929	5.4 " "	7.3 " "

For New York City, the case fatality rate has shown a decrease while in Kansas the rate has gradually increased. We have observed in Kansas that diphtheria is apparently of a more virulent type as the number of immunized children is increased. Health bulletins from other states call attention to the apparent increase in their case fatality rate following the immunization of large numbers of children.

In culturing 20,000 school children over the State of Kansas, it was found that the percentage of carriers was practically the same in immunized groups as in counties where immunization has been neglected. Our observations are that the immunized carriers pass diphtheria organisms of the most virulent type to the non-immunized child with the result that the case fatality rate is increasing each year among non-immunized children who contract diphtheria. Also, the adult population, a percentage of which has not acquired a natural immunity, are contacts with immunized children who are carriers. In 1920, 16 per cent of the reported cases occurred in age groups above 20. For 1929, 73.8 per cent were in the age group under 20 and 26.2 per cent were 20 or more, showing a decrease of 10.2 per cent below, and an increase of 10.2 per cent above 20 as compared to the reported cases in Kansas for 1920, as shown in Table V.

TABLE V

Year	Under 5 years	5 to 9	10 to 14	15 to 19	20 or over
1920.....	17.0	37.7	21.2	8.1	16.0
1929.....	20.6	32.2	13.4	7.6	26.2

These figures show 2.6 per cent increase under 5 years, 5.5 per cent decrease 5 to 9, 7.8 per cent decrease 10 to 14, 0.9 per cent decrease 15 to 19, and 10.2 per cent increase 20 years or more.

At present, 60 per cent of the children from 1 to 14 have received toxin-antitoxin. We believe there are other factors in addition to toxin-antitoxin immunizations which have played an important part in decreasing diphtheria cases and deaths, such as:

1. The physical examination of school children with the increased correction of defects relating to the nose and throat. Many children with defects of this type have been found who remain carriers of virulent diphtheria organisms for many months, medicinal treatment being of no value in clearing the carrier. Only by a surgical correction were these children made negative.

2. In 1922, the diphtheria quarantine period was extended to 16 days, with release at the end of this period only after 2 consecutive negative cultures 48 hours apart, and culture of all other members of the household. This rule has demonstrated that it prevents the release of numerous persistent carriers.

3. The culturing of contacts, especially in the schools, the removal and quarantine of the carrier for the same period as an active case with release under the same conditions.

The detection of a carrier is comparatively simple, but the problem of returning negative nose and throat cultures is much more difficult. If a carrier has diseased tonsils, they should be removed and any other pathological condition of the nose and throat corrected.

We have mentioned the county-wide immunization of the children of Wabaunsee County in 1921. This same plan was again adopted in 1926 for the non-immunized children who had entered school the past few years. After this second immunization work was completed, a careful check showed 95 per cent of the school population immunized. In October, 1929, a representative of the Division of Communicable Diseases checked the schools of the county to discover the percentage of immunized children in the various school districts. Only 52 per cent of the attendance was found to have received the toxin-antitoxin immunization. Every school district having non-immunized children arranged for the free immunization of pupils not having previously received the treatment. The results of this survey stress the importance of a yearly check on the number of pupils immunized, as even in this rural community the population shows a number of changes each year.

The Kansas diphtheria death rate per 100,000 population was in 1920 14.6; 1926, 2.7; 1929, 3.6.

The conclusions from these observations over this 10-year period are:

1. When 50 per cent or more of the children are immunized in a rural community, the non-immunized child is in greater danger of a fatal termination if it contracts diphtheria than in counties where no immunizations have been done.

2. Fatal cases are showing an increase in children under 1 year of age with an increased morbidity rate. The percentage of adult cases reported has shown an increase each year.

3. The treatment of diphtheria has improved during this period because physicians are giving 10,000 or more units of antitoxin. In the past 3,000 and 5,000

units were more often given as the initial dose. Adequate dosage of antitoxin given early will reduce the case fatality rate.

4. Many immunized children in rural districts are carriers of highly virulent diphtheria organisms.

5. Diphtheria shows an increased percentage of reported cases in the age groups above 20.

6. To be successful in the eradication of diphtheria, the preschool group must be immunized. Babies should be immunized when they reach the age of 6 months.

Maternity Benefits in Sweden

THE question of maternity benefits has been receiving considerable attention in Sweden in recent years. For a number of years there has existed in that country a system of voluntary sickness insurance, which also included provision for maternity benefits. But because of the voluntary feature of the system, large numbers of women were left without insurance; to remedy this situation it was decided several years ago to make insurance compulsory, and a bill to that effect was introduced.

Early in 1931 a new bill, prepared by the Department of Social Welfare with the collaboration of specially invited experts, was introduced into the Riksdag. The new bill provides for insured women midwife's services and a maternity benefit of 2 kronor (53.6 cents) per day payable for at least 30 days, and for at least 42 days in the cases of women workers who are by law forbidden to return to work earlier than 6 weeks after confinement. Nearly one-half of the above benefit is to be supplied by the national treasury; the rest by the sick funds. An unusual feature of the bill is maternity benefits and midwife's care for non-insured women whose income is below a certain amount. The cost of this aid is to be met entirely by the national treasury.

Another government bill introduced this year makes provision for prenatal and postnatal care. The work is to be started at first only in four provinces. The main purpose of this work will be teaching of hygiene to mothers by specially engaged physicians and nurses. Arrangements are also to be made for coöperation between the midwives in public service and the social welfare authorities. The work is considered as a supplement to the existing maternity welfare work in Sweden.—*Sociala Moddelanden*, Stockholm, No. 3, 1931; *Tidsskr. f. d. Barnavard och Ungdomsskydd*, Stockholm, Nos. 1 and 2, 1931, and translator's comments.

A Water-Borne Typhoid Fever Outbreak*

With Unusual Epidemiological Features

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SENECA Falls is a village of about 7,000 inhabitants, situated in the heart of the Finger Lakes Region of New York, and lies about 3 miles west of the northern end of Cayuga Lake and 9 miles east of the northern end of Seneca Lake.

Cayuga Lake, from which Seneca Falls receives its water supply, is about 37 miles long and from 1 to 3 miles wide, having a total area of about 60 square miles. The total population on the water shed is about 30,000, including the city of Ithaca which is situated on the southern end of the lake, has a population of about 19,000, and drains its raw sewage directly into the lake.

Both Cayuga and Seneca Lakes form a part of the New York State Barge Canal system. Mud Lock is situated at the outlet of Cayuga Lake through which all boats enter and leave this part of the canal system. Seneca River, now a part of the Barge Canal, flows into Cayuga Lake near Mud Lock. The current of the water normally is northward, joining the main portion of the Barge Canal at Montezuma. The level of the lake is maintained by a spillway located near Mud Lock. Seneca River receives the untreated sewage from Geneva, Waterloo, and part of Seneca Falls, a combined population of about 12,000, and is at all times highly polluted.

The water supply of the village of Seneca Falls is pumped from Cayuga Lake through a 16″ pipe into pressure filters and from these it goes directly into the water system, composed of about 22 miles of iron pipe varying from 4″ to 14″ in.diameter. The average daily amount of water pumped is 1,500,000 gallons. The intake pipe is about 3 miles south of the outlet.

With the normal flow of the lake toward the outlet the filter system has given fairly adequate protection to the water supply, although colon bacilli have been frequently present in the filtered water at certain times of the year.

* Read before the Epidemiology Section of the American Public Health Association at the Fifty-ninth Annual Meeting at Fort Worth, Tex., October 27, 1930.

The closing of the spillway of the Barge Canal creates a menace to the water supply of the village of Seneca Falls. This happens especially in the spring of the year when the level of the lake is high. At such times the water from Seneca River which forms a portion of the Barge Canal flows southward, reaching a point near and beyond the intake pipe of the Seneca Falls water system.

In the month of January, 1918, there was a sudden outbreak of diarrhea affecting a considerable number of people in the village of Seneca Falls. Investigations by the State Health Department showed that this reverse current from the northern end of the lake was probably the cause of the outbreak. Following this investigation the water board was urged to apply liquid chlorine constantly to the filtered water, and an apparatus was purchased soon afterwards, but not put in use.

In March, 1920, a similar, but more severe than the former, outbreak occurred under like circumstances. It was estimated that between 600 and 700 people in the village of Seneca Falls were affected with diarrhea and dysentery. The first case of this outbreak which lasted about 10 days and ceased about the time the gates were opened March 24, occurred March 15. A chlorinating apparatus was then installed and has been kept more or less constantly in use. Regular tests following this installation showed the water to be of a satisfactory quality.

A small number of typhoid fever cases followed both the 1918 and 1920 outbreaks of diarrhea.

On August 30, 1920, I received a telephone message from the Health Officer of Seneca Falls stating that typhoid fever was developing in a small portion of the village. This outbreak was very puzzling to him because the only common source of food or drink for the reported cases was the water supply, and inasmuch as tests made at the pumping station showed it to be of satisfactory quality, with no gas forming bacilli, he was unable to explain the outbreak, and I was requested to assist him.

I immediately went to Seneca Falls and learned that the outbreak had been preceded by cases of severe diarrheal trouble, one death from this cause having occurred August 28. This led me to believe that the outbreak was water-borne, and the officials connected with the water department were brought into conference and all facts concerning the outbreak were freely discussed.

The part of the village involved was a southwest corner adjacent to a large manufacturing plant employing from 700 to 900 people. This plant had an independent water supply from two sources, one a

deep well which furnished water for drinking purposes, and the other water pumped from the Seneca River part of the Barge Canal into large receiving tanks, and used only for flushing and cooling purposes. This plant was connected with the village water system at 2 points: one at Chapel Street and one at Heath Street. Single check valves served to prevent the back flow of water from the plant into the village system. This supply was not supposed to be used by the plant except in case of fire, but connections were made in order to secure lower fire insurance rates.

I also learned that the tanks containing water from the polluted stream were filled about August 9 and about that time there had been complaints from residents of the section of the village under question that the water was turbid. Little attention was paid to this as it was thought to be due to blind ends in the water system. Suspicion was immediately thrown upon the efficiency of the valves in the connections between the village and the manufacturing plant. It was ordered that they be immediately investigated.

Early the following morning these were uncovered and a large leak was discovered in the one at Heath Street. It was estimated that about 7,000 gallons of water could pass through this opening daily. A hole was drilled in the pipe between the plant and the village water system and a pressure gage applied, which showed that the pressure in this pipe was greater than that in the adjacent village mains. Samples of water were taken from the hydrants in the involved section and were found to be highly contaminated with gas forming bacilli and other impurities. The connections between the village and the manufacturing plant were sealed and the water mains in this section flushed out. Samples were again taken and the water found to be free from pollution.

The section involved is on a lower level than the rest of the village and the supply is through 8″ pipes, being reduced from 12″ pipes at the higher level. It therefore seemed quite clear to us that the pressure in the village mains was sufficient to overcome the factory pressure at the high level as the water in the remainder of the village system remained free from pollution. Another significant fact was that people in this section who used well water did not become infected.

The pipes connecting the village with the manufacturing plant were sealed but a large number of people had already become infected.

From the beginning of the outbreak to September 19 100 cases of typhoid fever occurred, all except 6 in residents of this section. These 6 had either visited or been employed in the infected section of the village. In fact, all of the infected persons were known to have used water in this particular part of the village.

A thorough investigation of the milk supply showed that of the 8 milk dealers the percentage of milk sold to the people infected corresponded very closely to their total distribution, with 1 exception whose patrons resided largely in this section.

The manufacturing company employed experts for the purpose of showing that this epidemic was milk-borne. These efforts, however, were unconvincing and only tended to emphasize the correctness of our first suspicions.

The problem of handling such a large number of typhoid fever cases was a serious one. Seneca Falls had no adequate hospital facilities nor could we secure them in the nearby cities. It became imperative for us to make some provision for a temporary hospital. Inasmuch as this happened soon after the close of the World War, very few nurses were available. The Health Officer applied to the Red Cross for assistance and several possibilities for a temporary hospital were considered.

Following a conference on September 6, we were able to secure a portion of the Episcopal church which seemed to be admirably adapted to our needs. Beds were obtained from the barracks at Oswego, and were rapidly converted into practical hospital beds. Screens were installed in all windows and excellent facilities for cooking made available. On September 7, 5 patients were admitted. A total of 34 were cared for at the hospital during the outbreak. The total hospital days was 836. Nineteen nurses were employed, 10 for day and 9 for night duty. Care was given not only to the hospital patients but a visiting nurse service was established for those treated at their homes. The number of home visits was 467. In addition, clinics for free inoculation with antityphoid vaccine were established, and 375 people were given these preventive treatments.

The total cost of maintaining this hospital was $5,309.60. The largest item was $2,568, for nursing service.

There were 5 deaths, 3 in the hospital and 2 outside. The average age of those infected was 29.4 years.

COMMENTS

As the spoor of the wild animal unerringly leads the hunter to his prey so it is that certain epidemiological data just preceding the outbreak of typhoid fever blaze for us the trail which we shall follow in speedily tracing its source.

The average age of the victims gives us a strong hint as to whether it is a milk-borne or water-borne outbreak, but what is of greater value in tracing water-borne outbreaks is the knowledge that dysentery and

diarrhea have immediately preceded the typhoid cases in the same locality, and it was this fact that placed us on the water-borne trail in spite of the fact that only a small area of the village was infected, and the only food or drink which was partaken by all of the victims was the water from the common village supply. By following this trail we were able to locate the source within a few hours and check further infection.

The excellent service rendered by the Red Cross undoubtedly prevented a much higher death rate. I believe no well organized hospital could have given more adequate and efficient care than was given by the Red Cross service in this temporary hospital.

CONCLUSIONS

Cross-connections between a city water supply and a water supply of doubtful purity for manufacturing plants or other purposes should never be tolerated. No mechanical device for protection is fool-proof, and all devices designed to protect municipal water supplies against water of questionable purity have been legally eliminated in New York State since July 1, 1926.

BCG Vaccination

MY experiments provide no confirmation of the conclusion of Wilbert (Director of the Laboratory, Pasteur Institute, French Guinea) that monkeys can be completely protected against a virulent experimental or familial infection by vaccination with BCG given by the mouth or inoculated into the tissues. Some of the monkeys fed or inoculated with BCG showed no higher resistance to the test bacilli than the untreated controls. In other monkeys the disease produced though progressive was more protracted in its course and, but not always, less in extent than in the controls. . . . The strain of BCG used in these experiments can produce local lesions in the rhesus monkey, but these are always benign and do not lead to generalization.

BCG given by the mouth can pass through the mucous membrane of the alimentary canal into the adjacent glands and also gain access to the blood stream.

Vaccination with BCG, whether by feeding or by injection, has failed to give to monkeys the complete protection against tuberculosis reported by Wilbert, but in some instances may have produced a low grade of relative immunity.—Abstract, *Special Report Series, No. 152*, A. Stanley Griffith, Medical Research Council, 1931.

Inter-Chamber Health Conservation Contest*

LEROY A. LINCOLN

Chairman of the United States Chamber of Commerce Health Conservation Contest Committee

THE people of our country have, in large part, come to realize the importance of public health administration. They see it as a vital matter not only for the individual but for the community as a whole. The increase of population and the rapid growth of our cities have made it imperative that we control epidemics and protect their citizens, in every way science makes possible, from unnecessary diseases and premature deaths. This is a matter of the first importance to business and to the whole economy of the nation. When people are sick they are unable to do their work; there is loss in production and expense in treatment.

It is not ordinarily realized that the great advances which have been made in public health work are very recent. The expectation of life or the "average-after-life-time at birth" has increased about 18 years in the last 100 years. It was 41 years around 1930, and is now close to 59 years. But 10 of those 18 years have been gained since the beginning of the present century. In the earlier period there was an accumulation of knowledge of how diseases are caused and spread; in the last 3 decades we have been applying such knowledge to human betterment. The organization of public health administration, as a function of government, is relatively new. We are only now learning what great advances in human welfare are possible when the basic discoveries of modern medicine are generally applied. The public wants the benefits of the scientific discoveries and it is willing to tax itself within reason toward these ends.

There is still much to be done in the field of preventing disease and premature death. Experience not only in this country but all over the world has demonstrated that public health is purchasable and that expenditures made in this direction pay the best kind of dividends to the community.

And so it was that the Chamber of Commerce of the United States

* Presentation of Awards to the winning cities in the 1930 Health Conservation Contest at the Annual Meeting of the Chamber of Commerce of the United States at Atlantic City, N. J., April 28, 1931.

two years ago, announced an inter-chamber health conservation contest. The Health Committee appointed by the Insurance Department Committee of the Chamber was convinced that many cities could reduce serious economic losses through improved public health organization. It was also believed that competition between cities would arouse interest over the whole country and result in better conditions. It was for this reason that the Inter-Chamber Health Conservation Contest was launched. The work was carried on under the auspices of the National Chamber with the coöperation of the American Public Health Association.

The first announcement in 1929 received an immediate and encouraging response from the local chambers of commerce. There were 140 cities in the first enrollment; in the second year, which has just closed, the enrollment was 208 cities. The entries geographically have been very widespread. Cities in 43 states, the District of Columbia and the Hawaiian Islands were represented this year. Twenty-one per cent of the cities are in the eastern section; 38 per cent in the central; 29 per cent in the southern; and 14 per cent in the western. The total population represented in the 208 cities was over 25 millions. On every side, the work of the contest was met with satisfaction.

The health officers, the local chambers, and the local business men who have interested themselves have appreciated to the full the value which the contest has had for their cities, the service which the field workers have rendered, and the excellent results which have followed.

The best proof of the favorable influence of the contest is that every city winning in this year's contest which had competed the year before showed a decided increase in its health score, as great as 30 or 40 per cent in some cases. While some of this improvement in the score may be due to better record keeping, there seems to be no doubt that distinct and definite advances have been made in community health accomplishments. Ninety-four per cent of the cities submitted schedules this year which showed from a moderate to a well-marked increase in score for public health services rendered and public health improvements effected, and this in spite of the fact that the requirements were made more exacting.

One of the important factors in this contest is the opportunity it has afforded to influential business men to serve on public health committees of local chambers of commerce and in this way to become acquainted with the local health problems. The contest has served to interest from 2,000 to 3,000 active and progressive business men to learn about their health departments, to see how they are administered, whether they are getting enough public funds, whether their

staffs are adequate and well trained—in short, to have a more sympathetic understanding of local needs.

The life insurance companies which are helping to finance the field work of the contest are cognizant of its value. They see the importance of the fact, look upon it as a real advance that the cities of the country are entering this contest, and are willing to study their health needs in a uniform manner, to follow standard practices, to increase budgets wherever necessary, and especially that they are securing the support and good will of their business men as represented in their local chambers of commerce.

In the year 1930, cities entered in the competition were divided, according to definite population groups, into 6 classes, thereby limiting each city's competition with those of comparable population. Following the winning city, the next 5 in each group have been given honorable mention and an engraved certificate will be sent to the local organization and the health department representing each city in the contest.

The winning and honorable mention cities in the respective groups are as follows:

CLASS I. (Cities over 500,000 population)
- Detroit, Mich.
- Milwaukee, Wis.
- Philadelphia, Pa.
- San Francisco, Calif.
- Baltimore, Md.
- Buffalo, N. Y.

CLASS II. (Cities 250,000–500,000 population)
- Newark, N. J.
- Cincinnati, O.
- Rochester, N. Y.
- Kansas City, Mo.
- Denver, Colo.
- Memphis, Tenn.

CLASS III. (Cities 100,000–250,000 population)
- New Haven, Conn.
- Syracuse, N. Y.
- Yonkers, N. Y.
- Hartford, Conn.
- Utica, N. Y.
- Reading, Pa.

CLASS IV. (Cities 50,000–100,000 population)
- Racine, Wis.
- Harrisburg, Pa.
- Evanston, Ill.
- East Orange, N. J.
- Durham, N. C.
- Pasadena, Calif.

CLASS V. (Cities 30,000–50,000)
- Alhambra, Calif.
- Salem, Ore.
- White Plains, N. Y.
- West Orange, N. J.
- Watertown, N. Y.
- Fargo, N. D.

CLASS VI. (Cities under 30,000 population)
- Chestertown, Md.
- Sidney, O.
- South Orange, N. J.
- Albany, Ga.
- Palo Alto, Calif.
- LaSalle, Ill.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

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LIFE MEMBERSHIP

THE life and value of any scientific organization depend upon the quality and permanence of its membership, as well as upon the contributions which they make to the particular science to which the organization is devoted.

The American Public Health Association will hold its Sixtieth Annual Meeting in Montreal in September. It is, we believe, the oldest public health organization in the world, and one needs only to glance over its transactions to be assured that its membership has always included the leading men in the public health profession in the four countries whose citizens are eligible. Further study will show that every branch of public health has had expert consideration from the time its founder, the late Dr. Stephen Smith, published his epoch-making studies, up to the present. The Association has never gone out into the highways and byways in an attempt at numbers, though its doors have always been open to all who are seriously interested in public health or have made contributions to this end along any of the many lines embraced. In spite of the many special societies, the Association has always held its own as the parent organization. Its files contain discussions of every subject relating to public health brought up to date from year to year by experts.

There is danger of being swamped financially and otherwise in the

multiplicity of scientific societies, the pressure from which has been felt by all.

In 1928, constitutional provision was made for Life Membership in the Association to which any member or fellow is eligible. While membership in the Association is an honor, and fellowship takes recognition of the fact that one has been a member in good standing for a number of years, life membership is a still higher privilege, since it is granted only on the recommendation of a special committee which examines the qualifications and character of the applicant.

There are advantages to the holder of such membership as well as to the Association. The life member has no annual dues and no subscriptions to the JOURNAL of the Association to meet. His standing is assured in good times as well as those of depression. He has proved to the world his right to membership in this oldest of all organizations of its kind, and has shown the highest type of professional spirit.

From the standpoint of the Association, there is relief from the expense incidental to sending out annual bills and making collections. Further, it gives to the Association a permanent fund upon which it can count—an endowment, as it were—from those of its members who appreciate what it has done for them and the profession in which they are most interested.

Several very pleasing suggestions have been made by the committee in charge of this matter. Health officers and other health workers may be proposed by their associates or communities for Life Membership in honor of a Christmas, a birthday, an anniversary, or retirement. As such, it is a certificate of honor, as well as a recognition of faithful service.

Let us make the Sixtieth anniversary meeting of our Association memorable by the election of a large number of life members, and in so doing, renew our pledge to the world for the betterment of mankind and his environment.

LEE K. FRANKEL, PH. D.

LEE K. FRANKEL, President of the American Public Health Association in 1919, died in Paris on Saturday, July 25, in the 64th year of his age. He had been in Europe for 3 months conducting a study of social insurance and of the effect of the various insurance systems on the health and well-being of the people. In his death, the public health movement has lost a leader of distinction. Few did more than he to advance the movement along so many lines during the last quarter of a century.

Frankel's service was probably of the greatest value in the field of public health education. As the head of the Welfare Division of the Metropolitan Life Insurance Company since 1909, he enjoyed an extraordinary opportunity to spread the gospel of personal health and of community hygiene to every corner of the United States and Canada. Very early, he created an extensive popular literature which covered virtually every one of the communicable diseases and, in fact, every important aspect of personal hygiene. He succeeded in making the agency staff of his company a force for health promotion. Early in his insurance career, health officers and educators availed themselves of the opportunity to obtain the pamphlets and tracts prepared under his supervision for wide distribution among the general public and in the schools of the country.

Frankel advanced public health nursing possibly more than any other person of his generation. At the beginning of his work in the Metropolitan, he established a plan of coöperation with the visiting nursing organizations of the large cities of the country. Before very long, he had made satisfactory arrangements with these associations for nursing sick policy holders of his company over the entire area covered by its industrial business. In this way, the public health nursing movement of the country was substantially assisted and enabled to extend its operations in a manner that would have been thought impossible 25 years ago. It is also true that contact of the associations with the company resulted often in higher standards of bedside care, in the improvement of nursing records, in the establishment of a good accounting system, and in excellent supervision.

Frankel early established close contacts with health officers and others engaged in official health service, federal, state, and municipal. To all, he offered the coöperation of the company. Hundreds of campaigns were launched each year from his office to assist local health officers to popularize immunization against diphtheria, clean up the city, build tuberculosis sanatoriums, increase the municipal health budget, or check attacks on health service by those who were opposed to it.

His connection with the American Public Health Association began in 1909, when he became an active member. He was elected Treasurer in 1913, and his ambition was to build up the American Public Health Association until it became a leading force in public health work in America. He became President in 1919, and at once launched a campaign to increase the financial resources of the Association. He obtained large donations from sustaining members and directed a drive for a larger membership. Before his term of office was closed, the

Association had entered a period of expansion. The momentum of his activity carried it forward for 10 years until the membership and budget of the Association were more than doubled. His interest in the Association continued after his term of office expired and he watched its subsequent growth with pride. He was helpful in launching the Committee on Administrative Practice and in obtaining the first financial support which made the work of this committee possible. It was with much satisfaction that he saw its work extended from year to year until its activities included service to principal cities and states of the country.

Frankel was an extraordinary man in many ways. A gifted scientific investigator himself, he initiated and encouraged research in fundamental problems in the health field. He organized a number of demonstrations to discover how best to control tuberculosis and other communicable diseases. He developed a new public health literature. But probably the service by which he will be longest remembered is his demonstration that public health work, well conceived and administered, brings returns more than commensurate with its cost.

SHIBASABURO KITASATO, M. D.

THE death of Kitasato is of more than usual interest to bacteriologists and public health workers, in spite of the fact that for many years he has had very little touch with this country.

Born in 1856, he was sent by the Japanese Government to Germany in 1885, to study under Robert Koch, who at that time had reached the height of his fame, having announced his discovery of the bacillus of tuberculosis in 1882, and cholera in 1883.

Kitasato's fame will always rest upon his achievements in the isolation of the bacillus of tetanus in pure culture in 1889, his conjoint work with von Behring in which tetanus antitoxin was produced, which is held by many to have laid the foundation of modern serum therapy, and the discovery of the bacillus of bubonic plague in Hong Kong, in 1894. Yersin, during the same epidemic, isolated the germ independently.

In 1891, Kitasato returned to Japan, and a year later, established his private laboratory which was later subsidized by the government, and then taken over under the name of the Imperial Japanese Institution for Infectious Diseases. He created there a school of bacteriologists, among whom Shiga and Hata are especially well known.

A story is told in Germany that Kitasato was for a time very irregular in his attendance at the laboratory. One day Koch sent for

him, and told him that he would be returned to Japan promptly if he did not stick to his work. He disappeared for several days, and when he returned, brought with him a quantity of earth from which he isolated the germ of tetanus. For years afterwards, "Herr Kitasato's Tetanus Erde" was sold to students by the diener. A bottle of this earth is still among the mementos of the writer.

Kitasato was the recipient of many honors. In 1917, he was made a Member of the House of Peers by the Emperor of Japan, and in 1924, the title of Baron was conferred on him. He was a foreign member of the Royal Society of London.

WILLIAM CHARLES HASSLER, M.D.

IN the death, at the age of 63, of William Charles Hassler, City Health Officer of San Francisco, and President-elect of the American Public Health Association, the Association loses more than an officer and member of the Executive Board. He has been for many years a sincere, energetic worker for the interests of the Association. In 1920 he was our San Francisco host during the Annual Meeting. In 1930 he organized and was first president of the Western Branch, A. P. H. A., and increased the western membership more than fourfold in the past three years.

The extent of Dr. Hassler's administrative and public health ability has been too little appreciated outside San Francisco. Beginning his work with the Health Department shortly after his graduation from Cooper Medical College (now Stanford), in 1900, he was appointed Chief Sanitary Inspector of the City Health Department. He distinguished himself by establishing a registration office for births and deaths on the front porch of his residence on the first day of the 1906 earthquake and fire. Through his efforts and those of the U. S. Public Health Service in the enforcement of rat-proofing and inspection ordinances, bubonic plague, which occurred in 1906 and 1907, has never reappeared. He was appointed City Health Officer in 1915.

In 1918, his drastic enforcement of mask-wearing as an influenza control measure nearly cost his life by assassination. A bomb placed by a crank in his office failed to explode. In 1926 he was commissioned by the Surgeon General of the U. S. Public Health Service as a special representative at the Geneva Sanitary Conference. His continuity of policy for 31 years as a public officer has brought San Francisco unique advantages in the development of its health program.

Dr. Hassler became President-elect of the A. P. H. A. at the last Annual Meeting in Fort Worth, Tex. He would have assumed the presidency at the close of the Montreal meeting.

ASSOCIATION NEWS

SIXTIETH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
Montreal—September 14–17
HEADQUARTERS—WINDSOR HOTEL

ENTERTAINMENT IN MONTREAL

THE Local Committee for the Montreal meeting makes the following preliminary announcement concerning entertainment for those who will attend:

On Monday evening, the opening day of the meeting, a dinner will be tendered to the Governing Council. This will provide an opportunity for the Governing Council to meet the representative body of Montreal citizens making up the Local Committee and representatives of the Federal, Provincial and Municipal Governments.

Following the general meeting on Monday evening, there will be dancing, and a buffet supper will be served.

An interesting event will be the garden party which will be held on Mount Royal. At a spot known as Look-Out Point, the City has just completed a chalet which provides accommodation for a large number. Here afternoon tea will be served and a musical program will be given by the band of His Majesty's Grenadier Guards. From Look-Out Point, a panoramic view of the City is to be had. Beyond the City is seen the mighty St. Lawrence, and glimpses may be obtained of the Adirondack and the Green Mountain ranges. Transportation to Look-Out Point will be arranged.

The ladies will be invited to attend the Garden Party. A motor trip around the City has also been arranged for them.

SCIENTIFIC TRIPS

ARRANGEMENTS have been made for trips of general and scientific interest to various types of hospitals, large sewers under construction, filtration plants, incineration plants, milk pasteurization and industrial plants, the Radium Institute, and provincial and city health department laboratories.

The complete list of scientific trips will be published in the Entertainment Program, a copy of which each registrant will receive as well as the Final Program at the time of registration. Registration headquarters are located in Windsor Hall. The registration fee is $2.00 for all delegates.

SPECIAL SESSION ON PUBLIC HEALTH ADMINISTRATION IN GREAT BRITAIN

THE following program has been arranged for Tuesday afternoon, September 15.

A Brief Review of British Public Health Administration. GEORGE F. BUCHAN, M.D., M.R.C.P., D.P.H., Medical Officer of Health, Willesden, London

Public Health and Public Assistance. SIR ALLAN POWELL, Public Assistance Officer, London County Council, London

The English Public Health Service—Education and Training. CHARLES PORTER, M.D., B.Sc., Medical Officer of Health, Marylebone, London

Maternal and Infant Services. JAMES FENTON, M.D., D.P.H., Medical Officer of Health, Kensington, London

NEW MEMBERS

Health Officers Section

William R. Cameron, M.D., Hagerstown, Md., County Health Officer

Frank M. Fitch, M.D., Indianapolis, Ind. (Assoc.)

Seth M. Kerron, M.D., Eugene, Ore., City and County Health Officer

Frederick S. Leeder, M.D., Great Barrington, Mass., Medical Director, Southern Berkshire Health District

O. R. Taylor, M.D., Linden, Tex., Director, Cass County Health Unit

Ralph Ten Have, M.D., Grand Haven, Mich., County Health Officer

William B. Terhune, M.D., Stockbridge, Mass., Chairman, Board of Health

Guy H. Turrell, M.D., Smithtown Branch, L. I., N. Y., Health Officer

Laboratory Section

Andrew Moldavan, M.Sc., Montreal, P. Que., Dairy Technician and Bacteriologist, Guaranteed Pure Milk Co., Ltd.

Edward J. Pugh, B.S., Wilkesbarre, Pa., Director, Kirby Health Center Laboratory

Vital Statistics Section

Eleanor MacDonald, A.B., W. Somerville, Mass., Statistician, State Dept. of Public Health

Marguerite P. Potter, A.B., New York, N. Y., Statistician, Comm. on Neighborhood Health Development

Public Health Engineering Section

Martin E. Flentje, B.S., M.S., Harrisburg, Pa., Supt. Purification of Water Companies operated by Community Water Service Co.

Onis M. Leonard, Frankfort, Ind., Director, Dept. of Public Sanitation

Food, Drugs & Nutrition Section

Helen Knowlton, M.A., Amherst, Mass., Asst. Professor of Home Economics, State College

Enid E. Miner, Rock Springs, Wyo., Hospital Dietitian, Wyoming General Hospital

A. Katheryn Royce, Burlington, Vt., Dietitian, Mary Fletcher Hospital

Margaret R. Sandels, Ph.D., Tallahassee, Fla., Educator, Teaching and Investigations in Nutrition, State College for Women

Eleanor F. Wells, B.S., M.A., Providence, R. I., Director, School of Homemaking, Y. W. C. A.

Child Hygiene Section

C. Adele Brown, M.D., Oswego, N. Y., Medical Supervisor, City Schools

Dr. Mary A. Wilson, Newark, N. J. (Assoc.)

Public Health Education Section

Harry S. Thomson, L.D.S., D.M.D., Toronto, Ont., Field Secretary, Canadian Dental Hygiene Council

Public Health Nursing Section

Anna L. Hartmann, R.N., Kirkwood, Mo., St. Louis County Health Dept.

Marguerite K. Jacobsen, R.N., New York, N. Y., Associate Director, Health Service, Cleanliness Institute

Adele L. Kuhle, R.N., Clayton, Mo., Public Health Nurse

Margaret Reddington, R.N., St. Joseph, Mo., County Public Health Nurse

Beatrice M. Sibley, B.S., Union City, N. J., Supv. of Nurses, Metropolitan Life Ins. Co.

Martha B. Waltmire, R.N., Perry, Fla., County Health Nurse

Unaffiliated

R. Gautier, M.D., Singapore, S. S., Director, Health Organization, Eastern Bureau, League of Nations (Assoc.)

Dr. R. Subramaniam, New York, N. Y., temp., Public Health Service, Madras, India (Assoc.)

DECEASED MEMBERS

Dr. Eugene Lyman Fisk, New York, N. Y., Elected Member 1915, Fellow 1922

Lee K. Frankel, New York, N. Y., Elected Member 1909, Fellow 1922

W. C. Hassler, M.D., San Francisco, Calif., Elected Member 1916, Fellow 1922

Wilson F. Monfort, St. Louis, Mo., Elected Member 1908, Fellow 1922

Edward L. Creeden, M.D., New York, N. Y., Elected Member 1927

William S. Keister, M.D., Towson, Md., Elected Member 1913

Thomas D. Maher, M.D., San Francisco, Calif., Elected Member 1929

APPLICANTS FOR FELLOWSHIP

HEALTH OFFICERS' SECTION: Joseph W. Mountin, M.D., Washington, D. C.

EPIDEMIOLOGY SECTION: Willard P. Greene, M.D., Minneapolis, Minn., Clarence H. Kinnaman, M.D., Topeka, Kans.

VITAL STATISTICS SECTION: Sheldon L. Howard, Springfield, Ill.

UNAFFILIATED: Emile Nadeau, M.D., Quebec, Que., Alphonse Lessard, M.D., Quebec, Que.

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D. P. H.

Health Demonstration in New York City—The work of the Bellevue-Yorkville Health Demonstration in 1930 was concentrated largely in cooperating with the Department of Health in working out an effective plan of local health administration. Two special projects were undertaken. One thousand children of 13 and 14 years of age were examined for tuberculosis to ascertain the kind and amount of tuberculous infection in a cross-section of the child population. Each patient was given a physical examination, tuberculin test, and X-ray of the chest. An intensive educational program to acquaint the population with the dangers of the venereal diseases was also instituted.

During 1930 each nurse in the Yorkville District averaged a case load of 331 patients in 227 families, and was responsible for the health work in at least one school and averaged nearly 3 half-days a week in clinic work.

No death from diphtheria occurred in the district during 1930. In fact, there has not been a death since August, 1929, although 94 cases of diphtheria were reported in 1930. A house-to-house canvass by nurses disclosed the fact that in 253 families there were 502 children between the ages of 9 months and 10 years. Of these, 283 had been protected against diphtheria and 219 had not received such protection.—Bellevue-Yorkville Health Demonstration, Milbank Memorial Fund, 1930.

Typhoid Fever in Ohio River Cities—An epidemiological study has been made of the possible relationship to the public water supply of the residue in typhoid fever cases in 6 Ohio River cities. Included in the study are East Liverpool, Steubenville, Wheeling, Ashland, Ironton, and Portsmouth. The Ohio River is the source of the public water supply of each city studied. While originally supplied with untreated water, at the time of the study all 6 supplies were treated by coagulation-sedimentation-filtration and disinfection with chlorine.

During the period of raw water consumption the typhoid fever incidence in each city was uniformly very high in every month of the year. Following the installation of treatment systems, the typhoid fever incidence fell to a low rate comparable to that enjoyed by cities with safe water supplies. Also the seasonal distribution changed so as to give a definite summer and fall incidence. An epidemiological study of reported cases during 1927 and 1928 failed to reveal any evidence that the public water supply was a factor in the transmission of typhoid fever.—M. V. Veldee, An Epidemiological Study of Typhoid Fever in Six Ohio River Cities, *Pub. Health Rep.*, 46, 1460 (June 19), 1931.

Eradication of Syphilis—Four persons per 1,000 of the population or nearly half a million persons in the United States are constantly under treatment on account of syphilis. In urban areas the rate is 5 times as high as in rural areas and there are half again as many cases among males as females.

Information furnished by practising physicians in New York State exclusive of New York City indicates that in 1930 there were 2,800 more cases of syphilis under treatment than in 1927.

The health officer, although interested in movements for social betterment, can most profitably restrict his activities to the application of effective well known medical and public health procedures. Briefly, the control of syphilis involves two elements: first, that every infected person must take treatment; and second, that facilities for diagnosis and treatment must be made freely available.

Legal aspects of the control problem involve case reporting, notification of sources of infection, compulsory treatment, and quarantine of irresponsible persons.

The medical service should include laboratory diagnostic facilities, adequate clinical services, free distribution of drugs, payment of physicians in rural areas for treating those unable to pay, and prophylaxis.

Among the epidemiological measures are: inquiry to determine source of infection, examination of contacts, and concentration of effort where necessary in early cases. Medical social service should be available to physicians as well as to clinics, to make family adjustments and to return lapsed cases for treatment. Educational measures should include the training of personnel, which includes the physicians, nurses, and social workers, education of the public and education of the patient.

The New York State program for the control of syphilis includes the establishment of a state-wide and state-aided system of county boards of health under the direction of trained, full-time health officers.—Thomas Parran, Jr., The Eradication of Syphilis as a Public Health Objective, *J. A. M. A.*, 97, 73 (July 11), 1931.

Rural **Health Program**—On February 6, 1931, Congress appropriated $2,000,000.00 for the promotion of rural sanitation in drought stricken areas. The restrictions on this appropriation are not like those imposed upon the Public Health Service in the administration of rural health work elsewhere than in the drought stricken region. It is not required that at least 50 per cent of the total cost of any project be defrayed from local sources. The appropriation is of an emergency character and terminates on June 30, 1932. Twenty-two states are considered as being included in the drought stricken areas.

An opportunity is presented to demonstrate the value of properly organized local health work. There is need for the further development in the Public Health Service of—(1) an adequate consultation and advisory service, (2) a service to develop better trained public health personnel, and (3) the extension of studies, surveys and experimental demonstrations with the view of obtaining additional knowledge with which to increase the effectiveness of public health administration generally, and produce more satisfactory results. —W. F. Draper, Some Essential Considerations in Connection with the Rural Health Program, *Pub. Health Rep.*, 46, 1617 (July 10), 1931.

Health Demonstration in China—With the financial aid of the Milbank Memorial Fund, there has been established in a rural county of North China with a population of 400,000 a demonstrational health unit. Ting Hsien is 85 per cent rural, the largest city containing 13,556 inhabitants, and there being 472 scattered villages. The health demonstration area includes the city and the neighboring 72 villages, a population of approximately 50,000.

Over 90 per cent of the people are illiterate. Most of them are poor, ignorant, and superstitious. The chief causes of controllable mortality are smallpox, gastrointestinal diseases, tetanus neonatorum, and tuberculosis. During the first year of the demonstra-

tion particular emphasis has been placed upon health education, improvement of the local water supplies, vaccination against smallpox, and the promotion of social hygiene.—Hsun-Yuan Yao, The First Year of the Rural Health Experiment in Ting Hsien, China, Milbank Memorial Fund, *Quart. Bull.*, July, 1931.

Diphtheria Prevention in Philadelphia—During the month of June for each of the past 4 years, the Health Department has carried on an intensive campaign to secure the protection of preschool children against diphtheria. In June, 1931, there were 85 school clinics in addition to the 9 regular health centers at which this service was given free of charge to those who applied. In 1928 protection was given to 24,800 preschool children. In 1929 the number protected was 20,400, while each of the two years 1930 and 1931 protection was given to 21,000 preschool children. This work has resulted in a reduction in the incidence of diphtheria.—*Health-fax*, Philadelphia Department of Health, June 29, 1931.

LABORATORY

JOHN F. NORTON, PH. D.

A COMPACT APPARATUS FOR THE DETERMINATION OF CARBON MONOXIDE BY THE IODINE PENTOXIDE METHOD

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IN order to conserve working space, an improved and portable apparatus for determination of carbon monoxide in air by the iodine pentoxide method has been designed and perfected. It has all the salient features of our older and larger type,[1] and other features which give it an advantage over the former apparatus.

Figure I shows the construction of the apparatus. A framework, V-V, is attached to a base Y. The various absorption towers and other pieces of apparatus are arranged around this framework in series. The sample is introduced into the apparatus at either T or S, depending on whether it is to be collected by continuous flow or from a gas-sampling bottle. R is a three-way stopcock which controls these openings.

The sample passes from the inlet to the towers O and M, containing concentrated sulphuric acid, to remove most of the moisture; then to K, concentrated sulphuric acid heated to 150° C. by means of an oil bath, E, to absorb the heavy hydrocarbons, most of the gasoline, and the methane; then to C, cold concentrated sulphuric acid, to catch any of the fumes liberated from K; then to A, activated charcoal, which removes the last traces of unburned gasoline and hydrogen; next to B, soda lime, and to D, dehydrite, to remove carbon dioxide and the last traces of moisture. These absorption towers are connected to a hard glass U-tube, G, containing iodine pentoxide, immersed in the oil bath, E, kept constantly at 150° C. by means of a thermostat, I.

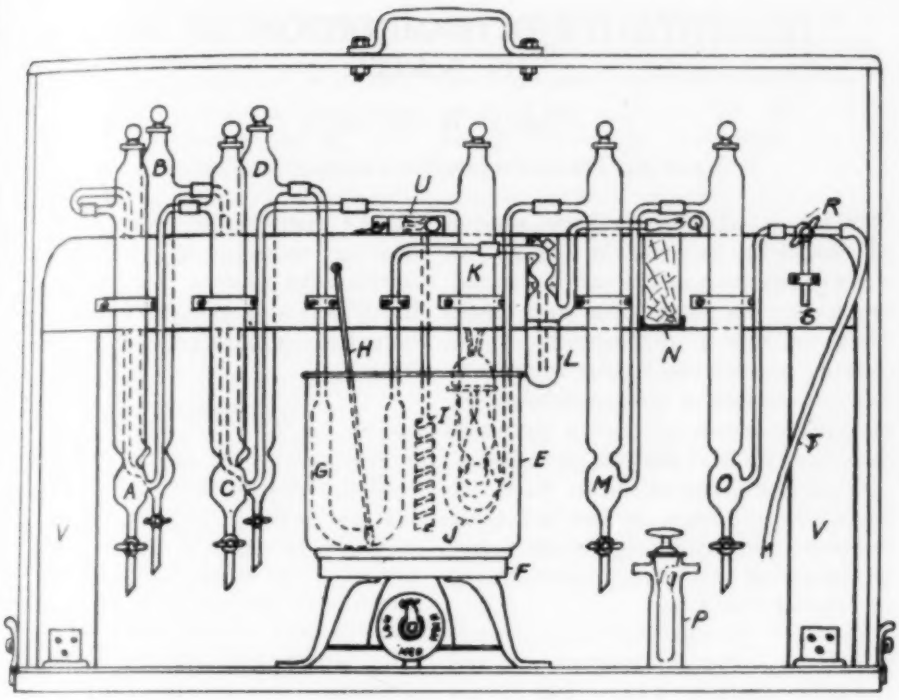

Figure 1.

and electric light, J, connected in series. U is a microfarad condenser attached to the circuit to prevent unnecessary sparking.

The liberated iodine is finally absorbed in a specially constructed absorption bulb, P, containing 5 c.c. of 10 per cent potassium iodide. This bulb is connected at Q, and fits into the bracket N. Trap L prevents any of the solution in P from being drawn back into the tube containing the iodine pentoxide. The outlet end of the bulb P is connected to a standard meter, which registers the volume of gas flowing through the apparatus. The heating of the oil bath is done by means of an electric stove, F.

In case electricity is not available, the heating may be done with an alcohol lamp or oil stove. Thermometer H indicates the temperature of the bath.

The gas is drawn through the apparatus by means of an electric pump, for which a water pump or a series of aspirating bottles can be substituted when electricity is not available.

The space occupied by the new apparatus is much less than that required by the older type. By attaching the wooden case, Z-Z, which is held in place by means of catch-locks, X-X, the apparatus is made portable and can be carried from place to place with the handle W. By its use accurate determinations of carbon monoxide in air can be made in the field.

REFERENCE

1. Martinek, M. J., and Marti, William C. Modified Iodine Pentoxide Method for Determination of Carbon Monoxide in Air and Blood. *A. J. P. H.*, XIX, 3: 293 (Mar.), 1929.

QUANTITATIVE DETERMINATION OF ODOR IN WATER

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THE past five years have seen a wonderful response in the art of water purification to the public demand for water free from odor and taste. There are now a surprising variety of methods of recognized value in prevention and removal of tastes and odors, an excellent summary of which is contained in a paper by Paul Hansen, presented at the last convention of the A. W. W. A. Equally surprising is the fact that these methods have grown up without any yardstick by which to measure results or existing conditions.

It is not practical nor safe to determine taste indiscriminately on raw and partially purified waters, but fortunately most tastes are represented by odors. However, the determination of odor according to *Standard Methods* of the A. P. H. A. is not in any sense a quantitative determination, but merely the record of the opinion of the observer based on a momentary impression which cannot be recorded and referred to for comparison. While this method is the one which has been used generally, it must be obvious that it is not very useful in measuring the merits of odor removal processes—a problem of practical importance. Without a quantitative measure one can only guess at what to do and when to do it.

A method that does make possible a quantitative record of odor has been used by the author and others during the past few months. This is a determination of the threshold number which may be defined as the reciprocal of the highest dilution of the water which can be distinguished from odor-free water.

Example: 1 ml. of an unknown mixed with 99 ml. of odor-free water can be distinguished from 100 ml. of odor-free water, while a higher dilution cannot; the odor or threshold number is 100. If a dilution of 25 to 100 is required to distinguish, the odor is 4, and so on.

ODOR-FREE WATER

Water free from odor is prepared by boiling distilled water. Usually we find the odor present in the distilled water is not entirely removed until 10 per cent or more has boiled away. The steam may be cautiously inhaled from time to time to note when removal of odor is complete. Cool to water temperature.

PROCEDURE

Make up a series of dilutions of the unknown to 100 ml. each, using odor-free water. Place in 500 ml. Erlenmeyer flasks previously marked. Cover flasks with well fitting watch glasses. The range of the dilutions will depend on the quantity of odor present. The highest dilution should contain less than the amount required to distinguish; while the lowest dilution will contain more than minimum amount required. Large steps of dilution will necessarily be employed until the proximate range is located. Finally, the steps should increase by increments of 20 per cent, as the method is of this accuracy or better.

A blank flask contains 100 ml. of odor-free water. Take one of the series of dilutions, shuffle with the blank and attempt to distinguish. The observation is made by shaking the flask vigorously for 1 or 2 seconds, lifting the watch glass and inhaling deeply from the mouth of the flask. If the unknown

can be identified, a higher dilution is tried, or *vice versa*.

To check an observation it is usually necessary to prepare a fresh dilution, since the vigorous shaking and aeration is likely to make a perceptible difference in the threshold odor when repeated.

The flasks used should be steamed out by boiling water before using. The hands should be clean and free from odors such as tobacco, soap, etc. The necks of the flasks should be immersed occasionally in boiling water.

Getting the proximate range of the odor may be tedious until experience is acquired. Several hours may be consumed before definite decisions can be made on a single sample. Results are obtained more rapidly by working from lower dilutions to higher, as the intensity of odor in the lower dilution suggests the next higher step and seems to sensitize the observer to the test. Eventually, 10 to 15 minutes per sample will suffice for unknowns; while for plant samples in which the range can be predicted less time will be required. The method may be used for hot as well as cold odors. In the case of hot odors a temperature of 65° C. is about the limit of nasal tolerance.

We have not thus far noted any marked discrepancy in the results obtained by this method in the hands of trained, conscientious observers. There does seem to be considerable diffidence in the beginner resembling the first efforts of a child to walk, and the results may be somewhat erratic at the start.

VITAL STATISTICS

LOUIS I. DUBLIN, PH. D.

Mortality by Age Groups in Wisconsin, 1930—Recent press notices, released by the Wisconsin State Board of Health, contain interesting information concerning the chief causes of death at certain age periods in that state during 1930.

For infants under 1 year of age, the chief cause of death was premature birth, which was responsible for nearly a third of the total deaths at this age. From ages 1 to 4, the highest mortality was caused by pneumonia; from 5 to 19, by accidents; from 20 to 39, by tuberculosis; and above the age of 40, by heart disease.

The important rôle played by accidents in the mortality record is shown by the fact that after the first year of life up to the age of 50, it was one of the three leading causes of death. During early childhood, ages 1 to 4, more deaths were attributed to this cause than to any one of the much feared childhood diseases of measles, diphtheria, scarlet fever or influenza. From 5 to 19, it was the outstanding cause of mortality, and during the period 20 to 39 it was exceeded only by tuberculosis. Even during the 40's and 50's, it was, next to heart disease and cancer, the chief cause of death.

Despite the great strides made during recent years in the reduction of tuberculosis, this disease caused more deaths between the ages of 20 and 40 in Wisconsin during 1930 than any other disease or condition. With the exception of accidents this disease was the leading cause of death, also during the age period 15–19. While the white plague may never regain the ascendancy it

once held in the general death rate, it is evident that, at least during this period of life, there is still room for much improvement.

Heart disease, as might be expected, was an important mortality factor throughout the life span. After 40, it was the chief cause of death, while in each earlier age group it was well up among the six leading causes.

Another disease which predominated throughout the entire span of life was pneumonia. At no age did it hold a position in the frequency scale lower than sixth and, as previously stated, during early childhood it was the most important cause of death.

That cancer, as a cause of death, should be exceeded only by heart disease in the late years of life was, of course, to be expected. But it will surprise many to find this disease among the ten leading causes of death during adolescence and early maturity.

The full significance of the figures pertaining to puerperal mortality in Wisconsin is not brought out by this study, since they relate to the total population instead of to females alone. If this distinction had been made, this group of causes would have figured even more prominently as a cause of death than now appears. As it is, some idea of the importance of puerperal conditions among the leading causes of death in Wisconsin may be derived from the fact that they averaged about fourth in rank throughout the ages 15 to 34. In the absence of specific figures, it is probable that among women within this age period, more lives are lost as a result of conditions accompanying childbirth than from any other cause, excepting tuberculosis and possibly accidents.

Other causes that merit attention are appendicitis and suicides. The former was one of the chief causes of mortality from the age of 3 to age 50. It ranked particularly high during childhood. At ages 5–14, it was exceeded only by accidents, and at age 3–4, by pneumonia, diarrhea and enteritis, and accidents in the order named. Suicide remained continuously among the chief causes of death from age 20 to 69, maintaining an average rank of about seventh throughout this period.

The results of this study point to the practical advantage that might be derived from an analysis along these lines of similar material covering a more extensive territory such as the United States Registration Area.

Mortality Statistics for France—The Service de la statistique generale de la France has published a volume of general statistics for 1928, from which were made several excerpts for the *Siècle medical*. Of the 674,046 deaths recorded in France in 1928, 344,999 were of males and 329,047 were of females.

The mortality rate is thus 16.6 per 1,000 of population, or 17.6 for males and 15.7 for females. It is evident, therefore, that the mortality rate for males is higher than for females, as is nearly always the case. The excess amounts to 19 per 10,000, or to 12.1 per cent—a wide difference, and yet not so great as the differences that appear on analysis of the deaths and classification according to age groups. For instance, in the 10 to 24 age groups the number of deaths of females is greater than that of males, and particularly in the 15 to 19 groups, a result that may be attributed in part to childbirth and in part to the reduced resistance brought about in woman by the onset of puberty. But from age 24 on, the tide turns the other way, and in the 45 to 59 year age groups the mortality of men is about 50 per cent higher than that of women.

One condition which prevents drawing from the official statistics all the conclusions that would have value from the standpoint of public health is the large number of deaths recorded as

"cause unknown." Such statements are found more frequently in the large cities than in the rural districts, which is something of a reflection on the acumen of city practitioners.

In Dijon 635 deaths out of 1,000 are recorded by practitioners with the statement "cause unknown"; in Marseilles there are 599 out of 1,000, and in Grenoble 159 out of 1,000; whereas in the departments in which these cities are located the proportion, exclusive of these cities, ranges from 4.95 to 105.

It is possible that in some instances the rural practitioners pretend to have established a more precise diagnosis than is justified by the facts, and that the physicians of the large cities are more modest in their statements. It is to be considered also that necropsies, the only guarantee of a precise diagnosis, are seldom performed in the rural districts, whereas they are much more frequent in the large cities, where there are hospitals. It is, however, gratifying to note that the number of deaths from unknown causes is decreasing from year to year.

In the department of the Seine, the statistics show only 18 deaths per 1,000 as due to "unknown causes," as against 61 in 1925. But the proportion is still 569 in the department of Landes, in southwestern France, and appears to correspond to the greater or less perfection in the organization of the medical service.—*J. A. M. A.*, 97: 114 (July 11), 1931.

Trends in Population Increase and Distribution Among States During 1920–1930—The 1930 U. S. Census shows an increase of 17,064,426 persons during the past decade as compared with 13,738,354 during 1910–1920, while the respective rates of growth appear as 16.1 per cent and 14.9 per cent. If allowance is made for the change in the dates of enumeration, April 15, 1910, January 1, 1920, and April 1, 1930, and if a period of exactly 10 years is used, the 1920–1930 increase becomes 16,648,000, or 15.7 per cent; and the 1910–1920 increase 14,151,000, or 15.4 per cent. On this basis the rate of growth for the decade just past is only very slightly in excess of that of the preceding one. Both of these rates are well under that of the 21.0 per cent for the 1900–1910 period.

Comparing 1930 with 1920 there was a decline of nearly 16 per cent in the number of births, and of 31 per cent in the excess of births over deaths. The number of deaths has been fairly steady since 1920, although showing a slight increase as the population has grown. Net immigration varied widely from 1920 to 1923, but under the quota system since 1924, it has been fairly stable, though declining slightly. The excess of births over deaths has been much more important than net immigration in contributing to population growth, for only in 1920 and 1923 did less than four-fifths of the gain come from natural increase.

In 1930, the excess of births over deaths was over 11 times as important as net immigration in contributing to population growth. Although the largest excess of births over deaths occurred in 1921, the largest gain in population occurred in 1923, due to heavy immigration. The gain in population in 1930 was only 56 per cent of that in 1921 and 52 per cent of that in 1923. With only 1,110,000 persons added to the population during 1930, and with each year since 1923 showing a smaller increase than its predecessor, it is almost certain that the 1930–1940 gain will be less than 12,000,000, and quite likely that it will be as low as 9,000,000. This would mean a rate of growth of from 7.5 per cent to 10 per cent and a 1940 population of between 132,000,000 and 135,000,000.

California and Florida had the largest rates of increase in population be-

tween 1920 and 1930 with Michigan, Arizona, New Jersey, Texas, North Carolina, Oregon and New York all gaining over 20 per cent. Of these states, New Jersey, New York, California, and Michigan are primarily industrial and commercial; North Carolina and Texas have been experiencing a rather rapid industrial development and urban growth. Possibly the rapid increase of New York is the most surprising of these states. About three-fifths of its growth took place in New York City, which might have been expected to grow considerably less rapidly because of its size and population density. Probably the same factors that brought about this rapid growth in New York City were responsible for so much of the gain in New Jersey occurring in the northeastern part of the state, and for Connecticut being the only one of the New England states to grow as rapidly as the nation as a whole. States whose rate of growth was under 10 per cent during the decade just ended include Maine, New Hampshire, and Vermont; all of the West North Central states; and Delaware, Virginia, South Carolina, Georgia, Kentucky, Arkansas, Montana and Idaho. Barring Delaware, these are either New England states or states in which agriculture is the important occupation.

The greatest shifts in rate of growth during 1920–1930 as compared with the preceding decade were the declines that occurred in the Mountain states. Although New Mexico and Nevada grew faster than in 1910–1920, the rate for the division as a whole was cut from 26.7 to 11.0 per cent. In the balance of the country, the larger declines (i.e., amounting to one-fourth or more) occurred in Massachusetts, Connecticut, Ohio, Minnesota, Iowa, North Dakota, Nebraska, Delaware, Virginia, South Carolina, Georgia, and Arkansas. Barring Ohio and Delaware, the statement made above regarding states with a rate of growth of less than 10 per cent may be repeated for states whose rate of growth declined decidedly; namely, they are either New England states, or agricultural states.

The rural rate of increase of 8.8 per cent during 1920–1930 is slightly larger than that of 6.8 per cent for 1910–1920, while the urban rate of 23.1 per cent is slightly less than that of 24.5 per cent for the earlier decade. According to statements made regarding the economic situation of agriculture and urban industries, it would be expected that the situation would be reversed, that the rural rate of increase should have been lower in 1920–1930 than in the previous decade and the urban rate higher. A considerable part of the rural increase in recent years is due to the development of "acre-lot colonies" along the roads near cities and towns and has no connection with agriculture. Thus, the rural population in Massachusetts, Connecticut, New York, New Jersey and Pennsylvania increased 1,085,345 from 1920 to 1930, by far the greater part being due to city workers seeking country homes.

On the other hand, Indiana, Illinois, Wisconsin and the 7 West North Central states (which comprise about the best of our farming area) had a gain in rural population of only 70,452, Iowa and Missouri even losing 48,549 persons from rural communities. In the remaining states the situation is not so clean-cut.

The rural increase of 648,801 in California, the largest of any state, is probably more suburban than agricultural. In Texas, North Carolina, and Oklahoma, where the gain in rural population totaled 943,429, the greater part undoubtedly was agricultural, due to the expansion of cotton farming into areas relatively free from the boll weevil. On the whole, however, it is evident that "acre-lot colonies" contributed a large share, certainly two-fifths and probably

over one-half, to the rural growth, and that without this new development, the 1920–1930 rate of rural gain would have been still farther under the urban rate for this decade, and well below the rural rate for 1910–1920.—P. K. Whelpton, Population Trends in Population Increase and Distribution during 1920–1930, *Am. J. Sociol.*, 36: 865–879 (May), 1931.

Ten Years of Legalized Abortion in Soviet Union—On the tenth anniversary of the existence of legalized abortion in Russia (Nov. 20, 1930), Boyko makes an extensive survey of it. Russia is the only country in the world in which abortion is legalized and every woman has there the right to request that it should be performed if there are present any indications of a social character.

The author recalls the situation in Russia in the prerevolutionary days. The well-to-do classes got the best specialists and the poor people were left to the mercy of ignorant midwives or were left alone entirely without any help whatever. They paid heavily for it, mostly by their lives or by various chronic ailments which developed after unattended labors.

The aim of all Russian health departments throughout the country now is to take away the initiative from the criminal abortionists and shift it to the legal channels for a modern hospital. In spite of legalization, for the years 1922, 1923 and 1924 there were recorded in Russia 3,000 deaths from criminal abortion in the small villages of the republic of Russia proper (not of the whole union). The author stresses that these figures are far from complete.

The law requires that to every woman who applies for an abortion must be explained the risk of it to her life and future health. There is outlined a definite plan of indications of a social nature for abortion, and the government opened all over the country many so-called abortaries, most of them free. Abortion in Russia is at present accessible to every woman.

The following legal changes have been introduced lately: (1) The time limit is 3 months. If there is any medical indication, no limit in time is necessary. (2) Repeated abortions are not allowed until 6 months has elapsed since the last pregnancy. (3) The patient has to stay in bed for 3 days. (4) The attending physician has the right to refuse to perform an abortion and he has to refuse it when he finds a contraindication from the medical side.

The legislation on abortion in Russia met a flood of criticism, especially abroad. The claim was that such a law would lead to the degeneration of the nation. The author disproves this assertion, stating that it has no ground whatever. He shows that the birth rate in Russia for each 1,000 of population was: in 1911 (prerevolutionary), 43.8; 1923 (after the revolution), 42.2; 1924, 42.9; 1925, 44.2; and 1926, 43.2. In 1929 the net increase in population of Russia was 23 for each 1,000, while in France it was 1.3, and in England, 3.4. The total increase in population is at present 3½ million yearly.

The motives on which abortion is asked for in Russia were as follows: poor economic conditions, 48 per cent; desire to hide pregnancy, in large towns, 0.5 per cent; in country places, 4.1 per cent; various sicknesses, 21.6 per cent; the presence of a nursling in the family, 6.8 per cent; desire not to have a child, around 10 per cent. Legalized abortion is the only means for women's emancipation because there are not yet any contraceptives that prevent pregnancy with certainty.—*J. A. M. A.*, 97: 218 (July 18), 1931.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C. E.

SANITARY ENGINEERING IN A COUNTY HEALTH DEPARTMENT *

R. E. COOK

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SUFFOLK County occupies the eastern two-thirds of Long Island and has an area of about 920 square miles. It is 90 miles long and varies in width from 12 to 20 miles. It is a county of small communities, having 48 with a population of 1,000 or more, the largest with only 11,000. The total population of the county is about 160,000 but this is greatly increased in summer by the thousands of people who enjoy the recreational advantages of the seashore. Moreover, the permanent population showed an increase in the last decade of 50 per cent, which is much larger than in the preceding 10 years.

Suffolk County consists of 10 townships and 28 incorporated villages, making 38 separate health districts before the establishment of the County Health Department. These 10 towns vary in population from 1,000 to 30,000 people and in size from one of the smallest towns in the state to the largest, which is almost as large as the combined area of the three counties which constitute the remaining one-third of the Island. Moreover, only 11 of the 48 communities mentioned are incorporated. These communities have spread beyond their boundaries so that in the largest community about one-third of the population lives outside the incorporated limits.

With such rapid growth and overlapping of town and village jurisdictions, a county health department with adequate power and a full-time personnel was distinctly needed, and one was organized in November, 1928. It was the second in New York State and the first organized entirely by the people of the county.

With its organization the local boards of health, except in the 7 villages having a population of over 3,000, were abolished and the boards of health and health officers in these 7 villages were placed under the supervision of the County Board of Health, which immediately fell heir to all the sanitary problems in the county. The department as organized consists of a Board of Health of 7 members, a commissioner, deputy commissioner, sanitary engineer, veterinarian, two milk and dairy inspectors, bacteriologist, two clerks, several nurses and part-time assistant deputies.

The duties of the sanitary engineer in a county health department, or of the county sanitary engineer, may be divided into two broad divisions—that of assisting the Engineering Division of the State Health Department in the protection and supervision of the public water supplies and of the installation and operation of sewer systems and sewage disposal plants, and as agent of the local board of health in dealing with

* Abstract of paper presented before the New York State Sewage Works Association at Freeport, L. I., N. Y., June 5, 1931.

local problems in sanitation as hereinafter discussed.

The county sanitary engineer supplements the work of the state on one hand, and acts as consulting engineer to the town and village authorities on the other. In no way, however, does he interfere with the professional consulting engineer, but on the contrary does a great deal to stimulate the engaging of competent sanitary engineers by local authorities in order properly to carry out his recommendations.

The promotion of sanitation in communities is a very important duty and one that is difficult to evaluate, as it is chiefly accomplished by personal contacts and conferences with the authorities and civic organizations in these communities.

WATER SUPPLY

The chief and most important duty of the state and county sanitary engineers is the protection and supervision of the public water supplies. In New York State the State Health Department has full authority over the sanitary conditions of public water supplies, but as there are over 600 of these, it is difficult for the State Health Department to maintain continual careful supervision over all. It therefore devolves upon the local health department, in this case the county sanitary engineer, to maintain such close supervision and to do the necessary field work. He is greatly aided in this work by the existence of a laboratory in the County Health Department with a competent bacteriologist in charge.

In Suffolk County there are 31 public water supplies, 2 of which were recently discovered. These range in size from one serving about 100 to one serving about 50,000 people. Of the 48 communities having a population of over 1,000, all but seven, or 72 per cent of the population, are served with public supplies and these 7 communities will soon have public supplies. All these supplies except 2 are derived from wells, chiefly shallow wells, as Long Island is underlain with an extensive and practically pure ground water supply which is cheaply and easily obtainable. This fact somewhat prevents the extension of public water systems in the smaller communities, as it is comparatively easy for the home owner in a sparsely settled village to drive a small shallow well and derive fairly pure water at small cost.

During the last year samples of water have been collected from all water supplies once a month and a sanitary inspection of each supply is made at the same time. The rapid growth of population, and the consequent construction of many new houses, necessitates a careful watch by the county sanitary engineer on the sources of supply in order to prevent the location of any cesspool or other source of pollution near the supply. In some cases, the engineer supervises the installation of proper individual disposal plants placed beyond the required minimum distance from the wells. In other places he has helped to eliminate sources of possible pollution. In some instances where the presence of organisms of the *B. coli* group had been indicated, the seeming contamination was due to defects in the system and was soon cleared up.

The 7 chlorination plants in the county are inspected semimonthly, residual tests for chlorine are made, advice to the operator on the operation of the chlorinator is given and a check-up is made on the report furnished by the operator to the State Health Department. The maintenance of a residual of chlorine of at least 0.1 p.p.m. has been rigidly adhered to. Except for the 2 surface water supplies, the chlorine demand of the waters in Suffolk County is extremely low and careful control over chlorination must be maintained in order to prevent tastes due to over dosages.

The county sanitary engineer is frequently called upon to inspect and report upon the sanitary condition of many private water supplies. In the first year of the laboratory, 47 of these supplies were examined. Including public supplies, the total number of samples collected by the sanitary engineer during that year was 200.

He is also called upon to assist communities in the securing of more palatable water supplies, a service not necessarily of a sanitary nature, but yet somewhat affecting public health because if the taste of a public supply is unpleasant, the people will complain to the Health Department and tend to drive their own wells, which, in the built-up sections, will be more or less contaminated.

In particular, a certain village had a water supply which was high in salt content, high in iron, carbon dioxide and with a low pH. Under the recommendation of the county sanitary engineer, a new piece of property was secured and a test well driven. The results of analyses of samples collected from this well showed it to be satisfactory from all standpoints, and accordingly it was recommended that the village install a new system but particularly to locate the wells as far apart as possible and never to pump them over the rate used on the test well. These recommendations were fully carried out only after considerable time and patience had been expended to convince the village authorities.

In the two years in which the county has had a sanitary engineer, 4 new sources of water supply have been approved and the sources of pollution have been entirely removed from 3 supplies which had been threatened with potential pollution for many years.

SEWERAGE AND SEWAGE DISPOSAL

The satisfactory disposal of sewage on a broad scale in the communities in Suffolk County, particularly in the western part, is the big sanitary problem and the most difficult one to solve properly. When numerous complaints are received from nuisances caused by insanitary conditions due to overflowing cesspools or the discharge of raw sewage into creeks and bays, it is the duty of the county sanitary engineer to agitate and stimulate the construction of a proper sanitary sewer system and disposal plant. Where the State Health Department has already made a sanitary survey recommending sewers, he endeavors to have these sewers installed by developing a plan and a tentative estimate of cost. The difficulty of promoting sewer systems on Long Island, particularly in Suffolk County, is manifold for the following reasons:

1. The comparative ease of disposal of sewage into the generally prevalent sandy and gravelly soil by means of individual plants on small lots makes the great bulk of the population not in favor of them.
2. The flatness of the land and the high level of the ground water, especially on the south side of the island, makes the construction of sewers expensive.
3. The necessity for the protection of shellfish bearing areas and bathing beaches, which are usually in shallow and not well circulated waters, makes the cost of treatment high.
4. The lack of incorporation of practically all the large villages makes the legal method difficult.
5. The rapid growth of the communities in the western part of the county and the consequent expenditure of public money for other necessary improvements make the growing communities reluctant to spend a large amount of money from which only the business and comparatively small built-up areas will receive especial benefit at that time.

The above reasons explain partly the fact that out of the 48 communities above mentioned, only 7 have sewer systems and 1 of the 7 has an adequate and comprehensive sewer system and disposal plant. However, 1 community is now constructing a system and another has been ordered by the State Health Department to construct one.

The county sanitary engineer has completed thorough reports on proposed sewer systems and disposal plants for 2 communities. With the publication of these reports, he will endeavor to seek their adoption and completion by continual personal work with the local committees, organizations and authorities.

The supervision of operation of existing sewage treatment plants is a very important duty of the county sanitary engineer because only 1 of the 7 plants above mentioned has a full-time, trained operator. The operators of the other 6 plants are only part-time and have varied occupations. They had to be convinced of the necessity for the regular report on operation which could be submitted to the State Department. It is almost physically impossible in 3 of these plants to make the regular orthotolodine residual test so the chlorine rate in these plants is fixed according to the maximum flow of sewage. However, all these plants excepting 1 make regular reports to the state and maintain fairly constant chlorine control.

There are numerous places, particularly in the western part of the county, where sewers are needed and it is to be hoped that a broad and comprehensive plan on an economical and logical basis can be worked out and established. With its establishment, it will be the duty of the county sanitary engineer to see that all the installations of sewers and sewage treatment plants are developed and installed according to that plan.

GARBAGE AND REFUSE DISPOSAL

The supervision of garbage and refuse disposal rests to some extent in the Board of Health. Garbage and other organic matter in the process of decay cause disagreeable odors and breed flies and rats. Also, such material is liable to catch fire and sometimes does, which produces smoke which has an obnoxious odor. The indiscriminate dumping of garbage, together with the presence of many public dumps, causes nuisances detrimental to the health of considerable numbers of people in the vicinity of the congested and built-up areas.

The local health department receives many complaints concerning this improper garbage disposal. Where numerous complaints are received in one vicinity, the county sanitary engineer makes a thorough investigation noting the location of dumps and dumping areas and their proximity to houses and built-up sections and the existing facilities in that area for the collection and disposal of garbage and refuse. He then recommends the most logical, economical and sanitary method for collection and disposal. Investigations have already been made concerning the garbage and refuse situation affecting about one-half the people in the county and certain definite results accomplished.

The proper method for each locality differs, but the main point is at first to recommend a place and method of disposal and then build up the collection systems around this focal point. According to present-day practice, the most sanitary and economical method of destroying garbage and refuse is by means of a properly designed and operated incinerating plant.

Because of the conflicting political subdivisions on Long Island it was necessary (in the four chief investigations made by the County Health Department) to recommend different operating procedures to accomplish efficient waste collection and disposal. In one case the *township* was advised to establish an incinerator, in another, a combined incinerator and garbage collection *district* was formed, and in the other two cases, the construction of incinerators was recommended to the incorporated *villages*.

With the providing of incinerators in areas in the county, the towns and vil-

lages are prevailed upon to pass strict ordinances making it criminal to deposit any refuse and garbage in any places other than those provided, and in this way it is to be hoped that the county will be rid of this nuisance producing garbage and refuse dumping.

The County Health Department has already accomplished very definite results in the four chief investigations made. Two places have already spent $110,000, another town has engaged an engineer and will spend about $60,000, and in the fourth, the erection of a suitable incinerating plant is being favorably agitated by the inhabitants. In still other areas, the department will help to stimulate further action in order to provide as soon as possible the proper central incinerating plants for the disposal of all garbage and refuse.

NUISANCES

The investigation and abatement of nuisances is a function of the local health department and one that unfortunately at times consumes a considerable amount of the time of the engineer and the officials of the department. In Suffolk County, all complaints regarding alleged nuisances made to the Health Department are immediately investigated, largely by the county sanitary engineer.

The existence of a nuisance detrimental to health is largely a question of fact and it devolves upon the one who investigates it to decide whether a health nuisance exists or not. Many complainants are satisfied with a personal visit of an investigator because a large number of complaints are only disputes and do not come under the jurisdiction of the Health Department.

Where the department receives numerous complaints from one community relative to improper garbage or sewage disposal, the procedure is usually as mentioned above, that is, a thorough investigation of the whole community's needs is made along these lines. Where isolated cases of these two conditions or similar conditions which might affect health are found, the engineer visits the place and in practically all cases secures voluntary compliance without recourse to legal action. In this way, a great number of major health nuisances, some of which have long existed, have been cleaned up by the County Health Department. In the second year of this department, 74 nuisances and complaints were investigated, 63 of which were entirely abated.

STREAM POLLUTION

The elimination and prevention of stream pollution is a subject which has recently engaged the attention of the Health Department in one particular instance. In this case, the river is a tidal stream, and it was a large shellfish bearing area. A year ago this area was condemned by the Bureau of Marine Fisheries for the taking of shellfish because of high bacterial counts and the apparent presence of human contamination. At the request of the town board of the town in which this river is located, a survey was made by the county sanitary engineer. The result of the survey showed the chief points of pollution to be near the head of the river where there were a group of houses, restaurants, and a hotel, and near the mouth of the river where there was a large state institution having an overloaded sewage plant and a large storm drain, the contents of which showed heavy pollution.

The County Health Department secured the voluntary elimination of the sources of pollution from the storm drain and also was able, by letter of recommendation, to have a new chlorinator installed at the sewage plant and the old one placed in proper operating condition. It was able, through the same procedure, to have the residents along the river remove their sources of

pollution and install proper sanitary disposal plants at a sufficient distance from the river. A thorough re-survey of this stream has been recently made by the department and it was found that the results of bacterial analyses had decidedly improved.

MILK SANITATION

The supervision of installation and operation of milk pasteurizing plants is placed under the direction of the sanitary engineer. In Suffolk County there are 2 dairy and milk inspectors whose function it is to supervise the dairies, of which there are between 200 and 300 producing milk sold in this county. The number of pasteurizing plants has been doubled in the county in the last 3 years so that there are now 12. Continual checking up on the recommendations made by the State Health Department concerning these plants resulted in the final approval of the plants existing at the time of the formation of the County Health Department.

The installation of the new plants was carefully watched by the county sanitary engineer in order that they would entirely fulfil the 75 provisions of the *State Sanitary Code* relating to construction, apparatus and sanitation because it is felt that the placing of a pasteurized milk cap on a bottle means to the milkman an insurance and to the public assurance that the milk contained therein is especially safe and a definite safeguard against the transference of any disease.

CAMPS

The County Health Department through its engineer enforces the provisions of the *State Sanitary Code* relating to camps, including the supervision of water supplies, milk supplies, disposal of garbage and sewage, and elimination of insects, particularly flies, and the issuing of the annual permit. In a survey made last summer there were found about 50 camps in the county many of which had never been inspected before the formation of the County Health Department.

The installation of an adequate water supply under pressure and a water-carriage sewer system with a small sewage treatment plant has greatly helped in the prevention of water-borne diseases and in making the camp a healthful place. The chief difficulty found in sanitation is the proper collection and disposal of garbage and kitchen wastes with a consequent fly problem. The best way to prevent flies, it was explained to the camp directors, was not to allow the exposure of any garbage or other organic matter; in other words, all garbage should immediately be put into properly covered metal cans.

Various methods of disposal of garbage were in use. Some camps had it removed by farmers; some tried burning it; others had it buried; while others were so situated that the garbage was removed by a public collection system, which method is, of course, the best. With the exception of the latter method, burying under at least 6 inches of dirt each day seemed to be the simplest and best method and it was recommended in most places. Keeping the kitchen and its surroundings clean and free of any exposed organic matter was found to be the most satisfactory method of preventing or eliminating flies.

Of the 50 camps, only 33 were given permits last year and some of these only after repeated visits to clean up certain insanitary conditions. It was estimated that about 12,000 people were in the camps in Suffolk County during the summer of 1930.

SWIMMING POOLS

The *State Sanitary Code* prescribes regulations for the construction and operation of artificial and partly artificial swimming pools which regulations are to be enforced by the local health de-

partment. A survey made last year by the county sanitary engineer indicated that such pools in Suffolk County were open to the air and operated only during the summer months. Only 6 pools were found, all located on the south shore, adjacent to public bathing places and operated on the draw and fill method.

These pools were carefully inspected, visits being made on hot Sundays when the bathing was at its maximum peak. As no purification or disinfection process was being used, particular emphasis was laid on the bacterial quality of the water. The sources of supply of the water were carefully examined, and all except one were found to be satisfactory. The results of analyses of samples collected from the pools, with the exception of the last mentioned, showed a bacterial quality above the standard required by the *Code*. This last pool was slightly below the standard, due undoubtedly to the somewhat unsatisfactory source of the water. A special effort will be made before this pool opens this year to have the quality of the water improved either by disinfection or changing the source to wells or some other satisfactory method. A special permit or license is required for the operation of these pools.

In concluding this subject, it might be added that the particular problems mentioned would be somewhat different in other counties, but it is the duty of the county sanitary engineer, trained in the broad principles of sanitation laid down by the State Health Department, to apply these principles toward the solving of the particular problems in his jurisdiction.

DISCUSSION

JAMES L. BARRON

Director, Division of Sanitation, Westchester County Department of Health, White Plains, N. Y.

MR. COOK'S paper presents an excellent review of the manifold functions of the sanitary engineer in a county health department. Through the engineer, and the inspectors working under his direction, many important contacts are made and services rendered to the individuals composing the population of the health district. Engineers of a state health department deal largely with municipalities and confine their activities primarily to the major problems of the water supply and the disposal of wastes. The county sanitary engineer has intimate contact with the officials of the municipalities or other governmental units within his territory and in addition renders service to smaller groups, organizations, institutions, and individual householders in numerous matters.

The sanitary engineer finds frequent opportunity to act as mediator and arbitrator between local municipalities or areas, and between various departments of the local government, where jealousies and suspicious attitudes or misunderstandings must be reconciled in order to promote a public good. There are many occasions when the differences of communities or groups of individuals with regard to matters of sanitation or conditions of environment need sympathetic and rational handling by the engineer. Such differences frequently arise over the disposition of garbage and the discharge of sewage.

Supervision of milk supplies can only be effective when all of its details are

centralized at one office. Adequate records of all sources and channels of delivery must be maintained. Inspections of dairies, shipping stations, pasteurizing and bottling plants, must be coordinated with the collection of samples and the interpretation and use of the results in the enforcement of the milk code. This work is a most important function of the sanitary engineer and it may well include the direction of a campaign for the eradication of bovine tuberculosis within the health district.

The New York *State Sanitary Code* imposes upon health officers the responsibility of issuing permits for the construction and operation of swimming pools. This is essentially an engineering job and in Westchester County where there are over 40 pools under the supervision of the County Health Department, valuable service has been rendered to the pool owners and operators in showing them how to run filters, apply chemicals, and make operating tests. In Westchester County it has been found necessary to require reports of daily operation on all swimming pools and these reports serve as the basis of the Health Officer's assurance that such pools are safe to use.

The multitude of complaints of nuisances, actual and alleged, which come to a county health department give the sanitary engineer many opportunities to exercise engineering judgment and to assist individuals in the solution of sanitary problems where the services of an engineer would not otherwise be obtainable. To the average householder a polluted well or a faulty private sewage disposal system presents a difficult problem, which, however, may in many cases be corrected by following recommendations of the sanitary engineer.

The health department is, in many cases, believed to have extraordinary police authority and to be capable of dealing with conditions which have no relation to public health. It has been found advisable in Westchester County to adopt a sanitary code, prepared by the engineer, which supplements the *State Sanitary Code* in many matters relating to general sanitation, foods, milk, and swimming pools. This code establishes penalties for violations, and serves to define the matters with which the health authority may deal. Experience thus far indicates that such a code is an invaluable instrument in the effective functioning of the sanitary engineer and his inspectors.

Sanitary engineering service is one of the most important to be rendered by a county health department. Obviously such service, together with many others from such a department, can be obtained only when health units are organized on the basis of a large population and taxable wealth sufficient to support trained personnel capable of administering the many phases of modern public health work.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M.D., PH.D., AND LEONARD GREENBURG, M.D., PH.D.

Eugene Lyman Fisk—The sudden death of a pioneer organizer of the Section on Industrial Hygiene in the Association has taken place. Dr. Eugene Lyman Fisk was one of the group at the Jacksonville Meeting in 1914 which formed the Section, and always took an active part in its work, having held all of the offices in the Section, and was Chairman at the Chicago Meeting in 1928.

A man, small in stature, quick in action and response, he will always be remembered for his business-like demeanor at our proceedings, his mental acuity and sly sense of humor, and innate good fellowship. We recall, at the height of a warm discussion before the Section at the Chicago Meeting, Dr. Fisk's apt question, "Gentlemen, are you discussing a condition of fact or a state of mind?" Similarly, all will recall his firm position on fundamentals, his spirit of congeniality and great fairness, and his labors with our various committees in which he spared neither time nor expense, while the finish he gave his reports was classical.

He was visiting his daughter who lives in Paris and had gone to Dresden to view the exhibit which the Life Extension Institute had loaned to the famous Hygienic Museum in that city when he was suddenly stricken, July 5. He was in his 65th year. As the world's great pioneer advocate of periodic medical examinations and their effectiveness in prolonging health and life, he unfortunately, as is so often the case with a pioneer leader, passed too soon out of the picture. Yet Professor Irving Fisher comments that Dr. Fisk had lived longer than most of his family, which was a short-lived one, and attributes the real cause of his death to grief over the death of his wife.

EUGENE LYMAN FISK, M.D.

One of the last pieces of work Dr. Fisk did while he was in France was the preparation in his own handwriting of the draft of his report as Chairman of our Committee on Industrial Fatigue, which he had hoped to work over and present in person at the Montreal Meeting in September. He was feeling quite himself when he made the trip from Paris to Dresden, so writes his secretary.

None need to be reminded that Dr. Fisk was the author, with Professor Irving Fisher, of the famous textbook, *How To Live*, 18 editions and numerous reprintings of which have appeared since 1915, or shortly after Dr. Fisk became the energetic Medical Director of the Life Extension Institute, in which the Hon. William Howard Taft was intimately interested and permitted his name to be used as Honorary President. The motif of this work is found in the following, which mottoes the 18th edition:

"Self love, my liege, is not so vile a sin, as self-neglecting.—*King Henry V, Act 2, Scene 4.*"

More closely bound up with the activities of our Association are to be mentioned his work on "Health Building and Life Extension," while his work in connection with the Council on National Defense laid the foundation for his books *Alcohol: Its Relation to Human Efficiency and Longevity*, and *Health for the Soldier and Sailor* (with Prof. Fisher), to which is to be added *Food: Fuel for the Human Engine*. To the medical world, particularly insurance examiners, his work with Dr. J. Ramser Crawford, *How to Make the Periodic Health Examination*, is the acknowledged leader in its field.

Naturally Dr. Fisk was a member of numerous scientific, professional and social-economic organizations. He began his life's work after graduation as an honor student from the University of New York in 1888, and after a few years in private practice went with the Equitable Life Assurance Society. He was appointed Medical Director of the Provident Savings Life Assurance Society in 1898. Here he organized the first periodic health examinations and education services established by any life insurance company. His publications show, likewise, that he took a keen and intensive scientific interest in the data secured from nearly a million physical examinations conducted by the Life Extension Institute. He developed the sinister significance of "silent sickness" in marring life and its span, and hence the stress on periodical physical examinations, especially for those in midlife and beyond.

He is survived by two daughters and three grandchildren. Brief funeral services held in Dresden were attended by the American Consul General and many officials and physicians, while burial services were completed in Brooklyn, July 30. Among the honorary pall bearers were a considerable number of members of the American Public Health Association.

It seems hardly fit to close without emphasizing Dr. Fisk's point of view on industrial fatigue, namely, continuous research along physiological and psychophysiological lines, with far more stress on intrinsic or bodily causes than extrinsic or environmental causes, and the reader will be well repaid in reviewing the last report of his committee in the Association's *Yearbook, 1930–1931*. The August issue of *How To Live* is devoted to press comments on Dr. Fisk's life and achievements.

Report of the Division of Occupational Diseases, Connecticut State Department of Health, 1930—With an appropriation of $27,002.25 for the 1929–1931 biennium, the Division of Occupational Diseases, composed of a director, an industrial hygienist, and a secretary, made 81 surveys and 25 studies of industrial conditions during the year 1930, and compiled data on 485 cases of occupational diseases reported. The state has an estimated population for July 1, 1929, of 1,641,313, and is divided into 8 counties, some of which are busy industrial centers.

It was also found that about 200 cases of occupational diseases which were reported for compensation, according to the files in the Superior Courts,

had not been reported to the division. Each of these had lost at least a week's time, from which it can be judged that there were many more cases than those reported. A slight modification of the so-called "standard report form" for occupational diseases is required to be filled out by physicians having knowledge of such cases.

The technical part of the work was organized as follows: (1) Survey of industries where potential occupational disease exposures exist and studies in plants presenting actual hazards; (2) making surveys requested by industry and studies where necessary; and (3) working out, in laboratory, technical details for particular studies.

To facilitate this program, a classification or codification of Connecticut's industries was effected, dividing them into about 100 groups. Likewise, potential hazards have been codified, there being about 70 of these (copies of forms, and tables are presented).

The division made 278 field trips and 145 visits to industries in addition to surveys and studies above enumerated, and during the year 33 towns in the state were visited.

The surveys included such matters as general hygienic conditions, spray coating, sandblasting, chromium plating, buffing and polishing, benzol poisoning, carbon disulphide, occupational dermatitis, radium, sulphur dioxide, vitreous enamel spray and hydrogen sulphide. Certain educational activities were likewise carried on and a number of prominent persons visited the division during the course of the year.

It is felt that the work of the division has now grown to such an extent that more assistance is necessary even to meet the request for studies and surveys coming from industrial sources.—Albert S. Gray, Chief, Division of Occupational Diseases. *Report of the Connecticut State Department of Health,* 1930, pp. 249–277. E. R. H.

Benzene (Benzol) Poisoning—This is an attempt to summarize what was published to December, 1930, regarding the action of coal tar benzene, C_6H_6, on animals and on human beings. The effect of large doses resulting in acute poisoning can be considered fairly briefly; the more important action of small doses administered over long periods of time has been far more extensively studied, and here there are many records of experiments on animals and also of the experimental use of benzene in the treatment for leukemia. There are also a fair number of careful clinical histories of chronic benzene poisoning, always in industrial workers, and a small number of detailed reports of autopsies.

Under chronic benzene poisoning the discussion pertains especially to experimental poisoning in animals, a short review of experimental poisoning in man, and a considerable discussion of clinical observations and case reports, including recovery, and the influence on infections.

The pathologic anatomy with differentiations from other diseases of the blood and the findings of most recent investigators are all included. (The bibliography fills 5 complete pages.)—Alice Hamilton, *Arch. Path. & Lab. Med.,* 11: 434–454; 601–637 (Mar. and Apr.), 1931. E. R. H.

Board for Silicosis and Asbestosis—A general medical scheme has been arranged by the British Government for coördinating the regulations for examination and certification under the different workmen's compensation schemes for silicosis and asbestosis. A medical board will act for the whole country and will be responsible for all the examinnations and certificates required. Four local panels have been set up in the industrial areas concerned—at Newcastle-on-Tyne, Bristol, and Stoke-on-Trent.

A scheme has been arranged for the

asbestos industry and extended to the various industries in which silicosis occurs by which workmen who, though not totally disabled, are certified to be suffering from silicosis, to make it dangerous for them to continue in the processes; they shall be compensated.—London Letter, *J. A. M. A.*, 27, 2: 113 (July 11), 1931. E. R. H.

Colliers and Silicosis—Prof. S. Lyle Cummins (Cardiff), speaking on coal miners and tuberculosis, said that coal miners, although so constantly exposed to the inhalation of both coal dust and stone dust, are notoriously less liable to pulmonary tuberculosis than the rest of the adult male population in Great Britain. There is, however, a high death rate of colliers from bronchitis.

A large proportion of elderly coal miners are affected with a degree of silicosis which though not sufficient to prevent them from working is sufficiently advanced to give rise to the radiological appearances characteristic of lung fibrosis; such men tend to be short of breath on exertion and are liable to have a cough and bring up rather copious sputum, often black in color; they are also subject to fairly frequent attacks of catarrh.—Annual Congress at Frankfort-on-Main, Royal Institute of Public Health, *Lancet*, 5625: 1367 (June 20), 1931.

E. R. H.

Silicosis in Ohio Industries—Sixty cases of silicosis from 26 localities were presented in this study, half of them with photographs of X-ray films, presented or loaned to the author by hospitals, radiologists, and physicians in certain centers. Thus, in all cases the victims were seeking medical aid, usually for shortness of breath, general fatigue, etc. Many of the cases were first diagnosed as to tuberculosis, chronic bronchitis, asthma, etc., but the history of the occupation coupled with radiographic findings rendered diagnoses of silicosis possible in all cases included in the study.

These cases represent 15 industries. Twenty-four of the 60 cases were sandblasters, 22 of which averaged 45 years of age and 7.7 years of occupational exposure (in 2 cases these data were not supplied). This was the shortest occupational life period in the group. Seven were granite and marble cutters averaging 53 years of age and 26 years of occupational exposure. Six were metal grinders and polishers averaging 55 years of age and 20 years of occupational exposure. Six were pottery and porcelain workers averaging 51 years of age and 28 years of exposure—the longest occupational life period. Autopsy findings substantiated the diagnosis in 4 cases. Tuberculosis was found to be a common complicating disease in these cases of silicosis, being present in 23 out of the 60 cases.

Full-page, half-tone photographs of X-ray chest films are presented with the thesis, the first one of which is that of a normal chest in a blacksmith in a stone quarry, 53 years of age, used for contrasting the other photographs shown.—B. E. Neiswander, Thesis for the M.Sc. degree, Ohio State Univ., 94 pp., 31 plates; also tables (June), 1931.

E. R. H.

Comparative Cost of Maintaining Health Departments in Michigan Industrial, Public Utility and Mercantile Establishments—

Number of Employees	Cost per Employee
20,000 to 25,000	$7.28 per year
10,000 to 19,000	6.87 " "
5,000 to 9,000	5.78 " "
2,500 to 4,500	5.20 " "
1,000 to 2,400	7.37 " "
500 to 900	6.29 " "
200 to 485	8.93 " "
Average cost for each employee	6.95 " "

Less than one-third of the establishments surveyed could give reliable fig-

ures on the cost of maintaining the health departments in their plants. Many did not keep accurate account of certain items, but all declared: "The well organized health department is worth while at any cost."

The cost of the health service through the plant first aid or health departments, as reported by individual firms, ranged from $2.47 to $22.00 per employee per year. The plant in which the cost was $22.00 per employee averages 1,900 employees; has full-time medical service by employing 2 physicians, each serving ½ day in the plant; has 3 nurses in the plant and 1 full-time visiting nurse; a fully equipped industrial hospital—eye room, dental room, X-ray and physical therapy rooms; requires careful physical examinations of all new employees and periodic health examinations. This plant has discovered a number of active cases of tuberculosis and taken steps to have all of them hospitalized. It reports also that in 2 years' time the average lost time by illness has been reduced from 8 to 3.4 days per employee, and no days lost from infections.

Another firm with 3,500 employees, 1 part-time physician and 4 nurses in the plant, stated that absences from illness have been reduced 49 per cent during the last 2 years, since establishing their visiting nurse service, to which they credit much of this improvement.

Ten per cent of the plants included in this report have 1 or more physicians engaged for full-time; 40 per cent have 1 or more physicians on the part-time plan—1 to 4 hours in the plants; while 50 per cent have physicians engaged "on call" only, most of them on the "service fee" basis.

Of the plants with 10,000 to 25,000 employees, 100 per cent have full-time physicians and 2 to 6 nurses in the plants; 50 per cent have visiting nurses.

Of those with 1,000 to 9,000 employees, 36 per cent have certain physicians on call; 30⅔ per cent have part-time physicians and 33⅓ per cent have full-time physicians. These plants have from 1 to 5 nurses in the plants and 26 per cent have visiting nurses.

Of the plants with 200 to 900 employees, 80 per cent have physicians on call, and 20 per cent have part-time physicians, no full-time physicians; 60 per cent have 1 nurse each in plant and 40 per cent depend on first aid workers.

In the plants having from 200 to 485 employees wherein there are the least adequate provisions for health service, the cost is highest.—Frank A. Poole, Director, Bureau of Industrial Hygiene, Michigan Department of Health, 1 page mimeographed (July), 1931.

E. R. H.

The Measurement of Physiological Values in Industry—A standard for nomenclature for classifying industrial employees physically and the technic of charting functional capacity are principal features of the paper. The psychological technic involves the interviewer, precautionary "don'ts," the conduct and scope of the medical examination, and standardization.

The physical technic concerns the type of instruments needed and a classification of the defects found—five classes being recommended.

A physician's key for correct technic in measuring and classifying functional capacity constitutes the major portion of the paper, which is accompanied by an infolded sample chart arranged for 16 physical examinations on the same individual. The chart is suggested as a standard form for adoption in industrial medical services.—M. E. Fulk, *J. Aviation Med.*, 1, 4: 237–294 (Dec.), 1930.

E. R. H.

FOOD, DRUGS AND NUTRITION

WALTER S. FRISBIE

Studies on the Effects of Overdosage of Vitamin D. II.—Experiments have been conducted showing that extreme overdosages of vitamin D had a peculiar action on the mineral metabolism of white rats and that increasing the dosages beyond a certain minimum caused a decrease in the ash of the long bones of the rat (*J. Biol. Chem.*, 84: 487, 1929; 86: 245, 1930).

The animals used in the experiment reported here were classed in 4 groups: Group I consisted of 9 third and fourth generations of young rats whose progenitors had received 40 units of vitamin D daily. These animals were placed on the same basal ration with the addition of 6,000 units of vitamin D in the form of dry irradiated ergosterol crystals. At the end of 3 weeks the animals were killed and autopsied and the specific organs and bones analyzed for ash content. Group II consisted of 6 adult second and third generation animals from the lot receiving 40 units of vitamin D daily. Group III consisted of third and fourth generation young animals whose progenitors had received 2,500 units of vitamin D daily. Most of the animals in this group died from the toxic effects of overdosage. Group IV consisted of 8 normal young animals to each of which were administered 10,000 units of vitamin D daily for 2 weeks. A table is given showing the analyses of bones and organs from all groups.

Dosages of 40 units of vitamin D daily were found to have no effect on the mineral metabolism of white rats when continued through the third and the fourth generations. No pathological calcification occurred and the ash of the bones was normal. The animals which received a moderate overdosage of vitamin D for a long period of time were more susceptible to a massive overdosage than normal animals.

A large overdosage (2,500 units) of vitamin D just insufficient to produce toxic symptoms in the first and second generations, given for a long period of time, produces the following changes in the third and fourth generations: (1) decalcification of the bones, (2) severe calcification of the bones, (3) severe calcification of the kidneys, and (4) certain pellagra-like symptoms, namely scabby conditions of the feet, nose, and forequarters.—Robert F. Light, Glennard E. Miller and Charles N. Frey, *J. Biol. Chem.*, 92: 47 (June), 1931.

Fat Soluble Vitamins. XXXII. The Distribution of Vitamin A in Tomato and the Stability of Added Vitamin D—In this paper the literature on the vitamin content of tomato has been reviewed. The object of this experiment was to determine how small an amount of tomato would be required to furnish the rat with sufficient vitamin A. Seventy-five white and piebald rats, 3 weeks old and weighing 50 gm., were used. They were fed a vitamin A free basal ration consisting of alcohol-extracted and heated casein 18; salt No. 40, 4; agar 2; yeast 8; dextrin 68. The ration was supplied with vitamin D by treating with ultra-violet light from a Cooper Hewitt quartz mercury vapor lamp.

The animals were fed as much of the ration as they cared to consume. Symptoms of ophthalmia appeared at the 4th or 5th week, but occasionally at the 3d

or 4th week, after which decline in weight followed.

When the ophthalmia gave indication of being permanent the rats were taken for test. They were given small amounts of tomato preparation in addition to the basal ration. Charts are given showing the rate of cure of ophthalmia on whole tomato and on tomato serum.

Recovery from ophthalmia was very slow, when the whole tomato preparation was ⅛ c.c. daily. On ¼ c.c. of tomato daily, ophthalmia was completely cured in 10 weeks and on ½ c.c. by the 8th week. On 1 c.c. of the tomato serum the animals all died by the 5th week. On 2 c.c. one animal died during the 6th week. On 4 c.c. one animal died during the 4th week and the others improved very slowly but died in the 11th week. It will be observed that the whole tomato contained about 32 times as much vitamin as the serum.

Experiments were also made to determine vitamin D, and tables are given showing the calcifying action of tomato alone and of tomato and ergosterol. Vitamin D added in the form of irradiated ergosterol was found to maintain its activity after sterilization followed by 13 months' storage at 37° C. —H. Steenbock and Inez M. Schrader, in coöperation with Blanche M. Riising and Alice M. Wirick, *J. Nutrition*, 4: 267 (July), 1931.

The Effect of Desiccation upon the Nutritive Properties of Egg-White—In a paper by Boas (*Biochem. J.*, 21: 712, 1927), it was shown that dried egg-white, when used as the sole protein in a diet for young rats, produces symptoms such as dermatitis, baldness and spastic gait which terminated in death in from 4 to 6 weeks. It was further shown that these symptoms could be prevented if substances such as yeast, potato, arrow-root, and fresh egg-white are added to the diet. Two hypotheses were advanced as possible causes: (*a*) that dried egg-white is lacking in some essential dietary factor, which is supplied by protective factor X; and (*b*) that a toxic substance is formed in dried egg-white as a result of desiccation, and that this is neutralized in some way by protective factor X.

This paper is concerned chiefly with a series of tests, some of a curative and some of a preventive nature, in which the effects of using some of the different constituents of egg-white, fresh or dried, as the source of protein were investigated. A table gives details as to the different diets used. All egg-white diets were dissolved in water and coagulated by heat before incorporation in the diet.

Each rat received with the diet 3 to 5 drops of cod liver oil daily. Crystalline ovalbumin was used as the sole source of protein in the diets of 2 rats which developed the usual symptoms after receiving dried egg-white diet for 8 weeks. Their condition improved and rapid growth followed. From the results here obtained it appears that when egg-white is dried some toxic substance is formed.

According to Hektoen and Cole (*J. Infect. Dis.*, 42: 1, 1928), there are five different proteins in egg-white—ovoglobulin, conalbumin, ovalbumin, ovomucin, and ovomucoid. Each of these was examined separately in an effort to determine from which protein the toxic substance is derived. The results obtained indicated that neither of these products contains toxic substances. It is concluded, therefore, that during desiccation of egg-white a toxic substance is formed from some non-protein constituent and that this substance remains present in the mother-liquor after removal of the proteins by precipitation with ammonium sulphate. However, the experiment has not yet been carried out to establish this belief.

It was found that rats suffering from the effects of the dried egg-white can

become spontaneously refected and that this condition can be transmitted from one rat to another by ingestion of the feces. Refection can be induced in rats, receiving the dried egg-white diet, by feeding the bulky white feces of refected rats on diets deprived of B vitamins. This suggests that the agency is the same in both cases.—Margaret Averil Boas Fixsen, *Biochem. J.*, 25: 596, 1931.

The Effect of Pasteurization upon the Vitamin C Content of Milk in the Presence of Certain Metals—This paper reports the results of studies as to the effect on the vitamin C content in pasteurized fresh milk aerobically in aluminum, in tinned copper, and in copper tubular pasteurizers. Six groups of animals were used, as follows: (*a*) a negative control group received no supplementary milk, (*b*) an autopsy control group was fed spinach as a source of vitamin C, (*c*) a standard comparison group received graded doses of raw milk, (*d*), (*e*), (*f*) three groups received graded doses of milk pasteurized respectively in aluminum, tinned copper, and copper.

Young male guinea pigs, weighing 200 to 240 gm., were placed on a basal ration with 35 gm. of fresh spinach and 10 to 30 c.c. of fresh, whole milk daily. The tables showing results of the experiments with the different dosages of raw milk indicate that 35 c.c. of the raw milk were not sufficient to protect the animals from scurvy and that there was about a 20 per cent deterioration in the quality of the milk as the season advanced.

The effect of pasteurizing milk in tinned copper was slightly greater than that found with the aluminum, the effect being noticeable both during the progress of the experiment and upon post-mortem examination of the animals.

The pasteurization of milk in naked copper resulted in a destruction of at least 80 to 90 per cent of the antiscorbutic vitamin, but all of this percentage cannot be charged to copper since the exposure to copper and the aerobic pasteurizing process both tend to destroy the vitamin.

The practical importance of these experiments is that copper is again shown to be unsuited for construction of dairy equipment so far as conservation of vitamin C is concerned. Tinned copper is unsatisfactory because of the impracticability of replacing worn inaccessible parts of equipment. As regards the destruction of vitamin C, aluminum is as satisfactory a material as there is for dairy equipment. These experiments are not inconsistent with the theory that anaerobic pasteurization would reduce the vitamin destruction even in the case of copper.

The authors point out that even though the vitamin destruction were reduced, from a public health standpoint great care should be taken in securing construction material with the greatest negative potentialities.—E. W. Schwartze, F. J. Murphy, and Gerald J. Cox, *J. Nutrition*, 4: 211 (July), 1931.

CHILD HYGIENE

RICHARD A. BOLT, M. D., DR. P. H.

HEART DISEASE IN CHILDHOOD

THE prevention of heart disease in childhood continues to challenge our best efforts. Since the epoch-making work of Sir James MacKenzie we have gained a clearer conception of heart disease, especially as it shows itself in the early stages. Great improvement has taken place in the classification and diagnosis of heart disease due largely to the painstaking studies of the American Heart Association and the Heart Committee of the New York Tuberculosis and Health Association.[1] While our methods of diagnosis have become more refined and exact, our knowledge of the underlying causes of heart disease and its prevention has lagged.

It is true that now we possess a better view of the heart as a functioning organ and of its ability to adjust itself to varying loads. The recognition of the protean character of heart disease was a decided step forward in view of its changing character at different age levels. It is generally accepted that rheumatic fever with its accompanying conditions is the main etiological factor in heart disease of childhood. While there is still some question as to the relation between focal infection and rheumatic fever, Coombs[2] considers rheumatic fever as an infection by "microörganisms that do not seem to be radically different from the streptococci that inhabit the normal mouth . . . the soil is as important as the seed. The healthy child does not become rheumatic because of bacterial visitation but because of defects of inheritance and environment."[3]

There is a tendency to accentuate the darker side of heart disease as seen in adults and to overlook the possibilities of prevention in childhood. The usual somber picture of heart disease presented in current literature is that of a disease with rapidly increasing death rate about which we apparently can do very little if anything. This viewpoint arises largely because we have set before us the crude death rates from heart disease with little or no analysis as to age distribution.

It is certainly true that the crude mortality rate for heart disease has been increasing, but when this is carefully studied it is seen that the increase has taken place mainly after 40 years of age. Analysis of the death rates under this age reveals that there has been a decided decline at all age levels, especially under 10 years of age. In view of the fact that our methods of diagnosis have become more refined and that parents generally are having their children examined periodically by competent physicians one must consider the decline in heart death rates at the lower ages as quite significant. It simply means that we are saving more and more children to live up to the period when heart disease takes its largest toll.

It is not the death rates alone which should concern us. There is evidence to show that the diseases leading to heart disease are slowly coming under the control of preventive medicine. The prevalence of those diseases associated with heart disease in childhood has diminished during recent years. Rheumatic fever, long looked upon as

the greatest cause of heart disease in children, is apparently on the decline in many parts of this country. While there is still some debate as to the etiology of rheumatic fever itself, there is practically unanimity that it is a general infection attacking those with a "rheumatic constitution." At any rate it manifests itself in various ways depending upon the tissues attacked.

We have long regarded chorea, "growing pains," polyarthritis, tonsillitis, and pharnygitis as rheumatic manifestations which may be precursors of organic heart disease. These conditions in children are undoubtedly becoming less prevalent in many localities. We should also remember that other acute infections such as diphtheria and scarlet fever are either being reduced considerably or now appear in milder types. If focal infections in teeth, tonsils, sinuses, etc., have any bearing upon heart disease, as many believe, it must be recognized that these conditions in children are receiving more rational and thorough treatment than ever before.

Another fact which stands out prominently is that with increasing care in the examination of larger and larger numbers of infants, preschool and school children, there appears to be no increase in the percentage exhibiting organic heart disease. It is true, of course, that congenital anomalies of the heart continue to occur in about the same proportion as formerly, but these form such a small percentage of the total that we can practically leave them out of consideration.

When we come to consider children under 2 years of age who have not been hampered with congenital heart disease, we find that very few of them present any serious heart trouble. Careful examination of a large number of young children in our infant welfare centers reveals comparatively few with organic heart disease. Aside from those with congenital deformities of the heart the death rate from heart disease under 5 years of age is relatively low.

When we consider the children of school age we find quite a diversity of figures presented. It is extremely difficult, if not impossible, to obtain comparable figures from different school reports. This is easily understood when we take into consideration the marked differences in methods of examination and reporting of heart disease. The figures range from 0.5 per cent to 1.5 per cent of the school children examined as having some form of heart disorder. The organic forms of the disease are not clearly differentiated from the functional in many of the statistics. Where painstaking examinations are made the percentage of organic lesions range from 0.3 per cent to 0.5 per cent in the elementary schools. There apparently is a very slight increase in the secondary schools. In children applying for work permits from 1 to 2 per cent show some heart defect, with about one-half of an organic nature.

From the data available one must draw the conclusion that while heart disease is a potential danger during the school age, it is by no means as serious as we have formerly been led to believe. We should especially be concerned, however, during the adolescent period as this is the time the heart is often put to considerable strain. Children returning to school after one of the infectious diseases should be carefully watched before being allowed to go into strenuous exercise.

Some very interesting data as to heart disease as a cause of death in children under 14 years of age appear in a recent contribution by Epstein.[3] He reviews the results of 1,000 consecutive autopsies upon children. Of this number there were 68 cases of acquired heart disease of which 36 were in children with a definite history of rheumatism. The distribution of the lesions

found were as listed below:

Mitral valve alone	19
Mitral and aortic	12
Mitral and tricuspid	7
Mitral, tricuspid & aortic	5
Mitral, aortic & pulmonary	4
Mitral, pulmonary & tricuspid	2
All four valves	2
Tricuspid alone	2
Aortic alone	1
Pulmonary alone	1
Fibrous Adhesive Pericarditis	35
Purulent Adhesive Pericarditis	15
Serous Pericarditis	7
Fibrous Pericarditis without endocarditis	9

The question of the relation of tonsils and adenoids to the health of children has often been raised and discussed. Some years ago Kaiser published the results of the removal of tonsils and adenoids of children going to the Rochester Dental Infirmary. In certain respects his figures at that time were inclusive. He has recently published another paper of much wider scope based upon a control study of 4,400 children over a 10-year period.

This study suggests that certain infections have a close relationship to the presence or absence of tonsils and adenoids. Other infections are not influenced favorably or unfavorably by the presence or absence of lymphoid tissue. A few infections seem definitely more common in the absence of tonsils.

The removal of tonsils and adenoids influences favorably the incidence of the following infections: (1) colds in the head, (2) sore throats, (3) cervical adenitis, (4) otitis media, (5) rheumatic disease: The first attack of rheumatic fever and rheumatic heart disease occurred 33 per cent less commonly in tonsillectomized children. Chorea and recurrent attacks of rheumatic fever were not influenced by removal of the tonsils. (6) Diphtheria, (7) scarlet fever, (8) nephritis, (9) dental infections: such infections occurred only half as often in the children whose tonsils and adenoids had been removed.

The following infections were influenced favorably to a slight extent: (1) chorea, (2) measles, (3) larnygitis, (4) tuberculosis, (5) malnutrition.

The removal of the tonsils and adenoids influenced unfavorably the incidence of the following infections: (1) bronchitis, (2) pneumonia, and (3) sinusitis.[4]

Other studies are to be desired along this same line, especially as to the relation of removal of tonsils to rheumatic fever.

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3. Epstein. *Am. J. Dis. Child.*, 41 (July), 1931.
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LESSONS FOR THE EXPECTANT MOTHER

IN 1922 Ellen D. Nicely, R.N., initiated an important piece of prenatal work in the University Public Health Nursing District of Cleveland, O. A course of plain talks and simple demonstrations was organized for mothers attending the newly established prenatal clinic of the Maternity Hospital of Western Reserve University. This proved of so much service to the expectant mothers and held out so much promise that Virginia Wing, secretary of the Health Education Committee of the Cleveland Health Council, assisted Mrs. Nicely in setting up a number of prenatal institutes throughout the city where she could extend her instruction.

In 1926 a Prenatal Committee of the Cleveland Health Council sponsored this work and made possible a number of prenatal classes in different districts of Cleveland where expectant mothers could receive instructions with practical demonstrations. These classes were approved by the Academy of Medicine of Cleveland as they were acceptable to the foremost obstetricians in the city.

Mrs. Nicely then drew up a series of simple lesson outlines for use in her prenatal classes. To these she added further lessons in habit formation and mental hygiene prepared by Mrs. Gary Myers. These were reviewed and approved by a group of the leading obstetricians in Cleveland connected with obstetric services of hospitals of Cleveland. The lessons were printed in mimeograph form and were widely used throughout the city.

Three years ago the Cleveland Health Council recognizing the great value of this project and considering it important enough to be integrated with the maternity services carried on in the community, turned it over to the Maternity Hospital with its 8 prenatal centers, and at the same time made the service available to St. Luke's, Mt. Sinai, and Huron Road Hospitals. Since then Mrs. Nicely has extended her group teaching, including in it lessons in mothercraft. Last year over 3,000 prospective mothers were reached. Of these mothers coming to confinement only one maternal death occurred. This certainly speaks eloquently for the value of such group instruction.

The lesson outlines have proved so helpful that it was decided to make them available in more permanent form to every organization in the community and to physicians and nurses who may care to use them. The Cleveland Child Health Association has had these outlines reprinted with attractive illustrations and is offering them for wider distribution. A copy of the *Lessons for the Expectant Mother* may be obtained upon request from the Cleveland Child Health Association, 621 Federal Reserve Bank Building, Cleveland, O.

PUBLIC HEALTH NURSING

EVA F. MACDOUGALL, R. N.*

The Public Health Nurse and Cancer—Because the public health nurse comes in closer contact with more members of the family than perhaps any other individual she ranks high as an agent in cancer control. If she is "cancer conscious" she is able to uncover many early cases of this disease through her close contact with and observation of apparently trivial symptoms in her patients.

The public health nurse should have a considerable knowledge about cancer and how it should be handled, because cancer ranks second as the cause of death in the United States and she is interested in health, also because most of the lay public have a particular dread of this disease.

The public health nurse is a trained observer. She can note the warty growth, the open sore or small ulcer, the scaly patch, the lump on the neck, the black or brown mole, all danger signals which need to be investigated and at least proved that they are not malignant.

As confidant of family abnormalities she also hears of symptoms which mean an early sign of cancer, like irregular uterine bleeding, blood in the urine, a lump on the breast, etc. Usually it is doubly hard to get patients with these symptoms to seek medical consultation because no pain is present. These symptoms may not mean cancer, but it

* Please send printed matter or other material relating to public health nursing to Eva F. MacDougall, 6 State House Annex, Indianapolis, Ind.

is the duty of the public health nurse to see that the patient receives an examination by a competent physician, to eliminate the possibility of cancer.

Many physicians are not qualified to determine whether or not a patient has cancer in its early stages, but by inquiring into the manner in which the examination was made (sometimes medicine is given without an examination) the nurse can get a pretty good idea of the reliability of the opinion given by the medical man. She knows something about the value of the cystoscope, the proctoscope, the laryngoscope, the speculum and digital examination. Sometimes if she feels that the opinion of one medical man has given the patient a false sense of security she should advise him not to be satisfied with one opinion in so important a matter.

Even after the patient has consulted a physician about some suspicious lesion, she must follow him up, see what the physician has advised and see that the patient follows this advice. She can explain why the physician wishes to take a section of the tumor or ulcer for examination, why the physician is the best judge of whether surgical methods should be used or not, and why the quack doctor can do untold harm in treating cancer. She can enlighten the patient somewhat on the use of electrical treatment and radium.

The nurse cannot recommend a physician even though she knows the patient cannot very well judge what physician is or is not qualified to give radium treatment; but she can " be prepared to offer a list of specialists competent to treat cancer, and inform herself on the clinic facilities available for those unable to go to private physicians."

The hope of curing cancer lies in early discovery, so the public health nurse is justified in taking special care to see that the cancer sufferer obtains correct treatment at the start of the disease. On her rests a grave responsibility to increase her value through her knowledge of cancer, since she will often be the " first contact between the early cancer case and the path which leads to proper treatment."—Ellis Fischel, The Public Health Nurse's Responsibility in Relation to Cancer, *Pub. Health Nurs.*, XXIII, 7: 334–337 (July), 1931.

The Vassar Training Camp for Nurses Has a Lasting Memorial—On June 24, 1918, 435 young women, graduates of 115 colleges and universities from all over the United States, with a few from Canada, gathered on the campus at Vassar College. At the same time came a faculty of fifty or sixty which included such scientists as Florence R. Sabin, M.D., of Johns Hopkins, C.-E. A. Winslow of Yale, Otto K. O. Folin of Harvard, William H. Park, M.D., of the New York City Laboratories, Margaret E. Washburn of Vassar, and other teachers of science from various colleges and medical schools. There were also instructors from the nursing schools of Bellevue, Johns Hopkins, New York, Presbyterian, St. Luke's, Hunan-Yale, and other great hospitals. These constituted the " Training School for Nurses at Vassar College " suggested by an alumna and trustee of Vassar College, Mrs. John W. Blodgett, endorsed and recruited by the alumnae of Vassar as their most important war work, accepted by the college trustees, and backed financially by the American Red Cross.

The curriculum of the course was devised by such prominent members of the nursing profession as M. Adelaide Nutting and Isabel M. Stewart of Columbia University and representing Natl. League of Nursing Education; Dean Annie W. Goodrich of the Army School of Nursing; Jane E. Delano of the American Red Cross; superintendents of hospital nursing schools like Miss Maxwell of Presbyterian, Miss Hilliard

of Bellevue, Miss Clayton of Philadelphia General, Miss Gray of City of New York, Miss Wood of Massachusetts General at that time, Miss Johnson, then at Albany, later of Massachusetts General, and Miss Logan of Cincinnati General. These women all assisted in the organization of the Camp. Herbert E. Mills, professor of Economics in Vassar, was entrusted with the organization and administration of the Camp with the title of Dean.

The plan in brief was a 3-months intensive training in fundamental sciences—anatomy and physiology, bacteriology, chemistry, elementary materia medica, nutrition and cooking, history of nursing, elementary nursing procedures, psychology, social economics—on the Vassar campus.

At the end of this period training was to be completed in leading hospitals over the country of which over 40 had agreed to coöperate. Students took an average of over 30 hours a week in lecture, laboratory and hospital practice ward. Their ability, enthusiasm and fine spirit made this a wonderful group.

Of the 435 all but 17 finished the hard summer's work; and for most of the 17 who withdrew there were good excuses such as illness or family deaths. About 400 entered their hospitals as probationers in September. Almost at once they were plunged into the horrors of the influenza epidemic, rendering invaluable service in that calamity. Five died during it and 2 later because of its results. Right after the epidemic came the armistice, and as patriotic service in time of war was uppermost in the minds of these nurses a number withdrew shortly after peace was declared. But despite influenza and peace, nearly half of those who entered hospitals finished their training and became registered nurses.

At a reunion held at Vassar at Thanksgiving time, 1920, attended by many of the nurses and a good number of superintendents of nurses from various hospitals, a very frank but good natured discussion of nursing education and hospital conditions took place, illuminating to officials as to the reaction of intelligent young women to the existing situation, but equally so to these young women as to the difficulties under which superintendents labored.

What has become of this group? Among them are superintendents and instructors in nursing schools, directors of university public health nursing courses, directors of public health nursing associations; teachers of hygiene in normal and other schools. With few exceptions they are all holding executive positions in nursing. They have been called to China, to South America, to Europe. Many have married and assert that what they learned at the Camp was the best possible preparation for home keeping and motherhood. Over and over they declare that that summer was the greatest experience in their lives.

To commemorate the Training Camp for Nurses a beautiful gateway to the college campus has been constructed, and it was dedicated June 8, Vassar's Class Day. Escorted by the senior class in their Class Day attire, singing marching songs, officers and students of the Camp marched to the gate where brief speeches were made by Mrs. Blodgett, President MacCracken, Mrs. Priscellia Barrows Sheldon, a student in the Camp, and Dean Mills. Part of the cost of the gate was met by students who had been connected with the Camp. By vote of the Vassar trustees the gate is to be called " Mills Gate " in honor of him who administered the undertaking and who has just retired from the college faculty after 41 years of service.

Public Health Nursing Records—The never ending bugbear of most public health nurses is the record they are asked to make of their work. Often in

the press of duties they forget how vital records can be made, that they are not an end in themselves, but a means to an end.

In his recent book *Health on the Farm and in the Village,* Dr. Winslow cites an analysis of the use of records from the Manual of the Visiting Nurse Society of Philadelphia.

Nursing records are of value:

A. To the Nurse, making her services to the family more complete—
1. By helping her to be observant of all the factors that might affect the health of the family.
2. By revealing the need of health work in each family and giving evidence of what is being accomplished.
3. By constituting a summary of conditions found and of action taken.
4. By improving the quality of the nurse's work, since the records also show what is being left undone.
5. By saving duplication and waste effort, since they enable one nurse to begin where another has left off in work with any family.

B. To the Organization—
1. By helping in the supervision of work, thus making it doubly possible to do thorough and complete family health work.
2. By helping to show how far the organization is meeting the needs of the community and where further development is desirable.

C. To the Public—
1. By providing valuable material for morbidity and mortality statistics.
2. By showing what are the greatest health needs of the community.
3. By showing the social as well as the medical causes of sickness.
4. Through such statistical material it may be possible to get community or legislative action to remedy conditions.—

C.-E. A. Winslow, *Health on the Farm and in the Village,* 1931, pp. 175, 176.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN*

Dr. Lee K. Frankel—It is but fitting that this department should add its modest mead of appreciation of Dr. Frankel, the first formally elected chairman of the Public Health Education Section of the A. P. H. A.

More than any other one person, Dr. Frankel has initiated or sponsored various forms of effort for large scale "mass education" in health—in variety, extent, and unusually high average of quality.

The continued development of the health education projects of the Metropolitan Life Insurance Company even beyond its present wide usefulness and extent will be an appropriate memorial to Dr. Frankel.

Today—If Not Already Done—If you have any health education-publicity material which should be displayed at Montreal, now is the last chance to send it. Address: Montreal Display, Evart G. Routzahn, 130 E. 22d St., New York.

Facilities for Utilizing Health Advice—In a discussion of "the legitimate field of public health agencies," Dr. J. W. Mountin, U. S. Public Health Service, emphasized, possibly without

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

intention, the comparative futility of offering health advice which calls for facilities lacking in a given community.

The health of the individual depends on his own efforts in a suitable environment. It is not sufficient that he understand the rules governing health and be willing to observe them; certain facilities must be made available to him. While measures for the prevention of disease and promotion of health find application in almost every phase of human activity, yet their full development will not be realized in any given community until some organization accepts their promotion as a major responsibility.—

Changing Status of Health Officer. *Ill. Health Quarterly*, State Dept. of Public Health, Jan.–Mar., 1931. See for facilities to be provided and relationships of health agencies and physicians.

Believe **It—Or Not**—Middletown, N. Y., in its *Health Bulletin* under the above title:

1. You can't get smallpox if successfully vaccinated within 7 years.
2. You can't get typhoid if you've had 3 doses of the vaccines.
3. You can't judge the safety of the cook by the neatness of her dress.
4. You can't have unreported and unquarantined cases of contagious disease in your home without endangering your neighbors and arousing their enmity.

Welfare **and Relief Mobilization,** 1931—1. In all probability in many parts of the country there will be increased efforts to cut down health and medical services along with all welfare activities except actual "relief." 2. More than ever before there will be increased need for these services during the financial emergency. 3. The Welfare and Relief Mobilization is a common effort, especially in cities of 25,000 and upwards, to strengthen the position of all existing services—public and private—and to expand them to meet emergency demands. 4. Health education and publicity workers may help in this nation-wide crisis by unceasing care and skill in helping to explain all health and medical services in their states and cities. 5. Good ideas and material which might be used in other cities may be sent to your national association for this wider use.

However much conditions may change for the better this fall unforgetable experience in the past has shown that high tide in the need for relief will not come until months later.

The interpreters of public health need to be very much on the job—to protect all services now functioning, and to seek emergency extension of service where needed. Close coöperation between local health and social agencies, public and private, will increase effectiveness and lessen complications.

When Half a Million Were Taught in a Day—The official motion picture film of the Shanghai Cholera Prevention Parade, with coffins and man-size flies, and Chinese policemen carrying health and cleanliness banners, will be shown at the annual meeting of the A. P. H. A. in Montreal. W. W. Peter, M.D., Dr.P.H., technical adviser to the Chinese Ministry of Health, now on leave of absence from his post as director of Health Service of Cleanliness Institute and formerly, for 15 years, connected with the China Council on Health Education, will sail August 26 to bring the film to America and expects to be at Montreal to greet old friends and new. It is probable that Dr. J. Heng Liu, director of the Ministry of Health, will send one or more representatives of the Health Education Division along with Dr. Peter for further study in the United States.

Between half a million and a million people saw the parade in Shanghai on Saturday afternoon, June 6, and it proved so successful that plans are al-

ready under way to repeat it next year. Altogether fully 2,500 persons took part, including Boy Scouts and Girl Guides of many nationalities, medical students, and others. Dr. Peter writes:

> The teaching principle followed was to show first the wrong way of living. Then came possible consequences carried on stretchers, and after several stretchers one or two coffins. Each unit was attended by megaphonists who explained the unit to which they were attached. Then followed a visualization of the same subject showing the right ways of living.

A few simple lessons, graphically and dramatically presented, were the center of this elaborate parade as they have been of the entire educational campaign of which it is only a part.

> Cholera spreads from sick to well through water, food, fingers, flies. . . . Cleanliness prevents cholera. Keep your hands clean. Use only clean water. Eat only clean food. Keep your home clean.

Before the day of the parade 10,000 posters were put up, chiefly on municipal property where no other advertisements were allowed. These bore illustrations of sanitary conditions involving washing of hands before eating; control of flies, sputum, and garbage, etc. The text in Chinese, English, and French read: "It is easier to prevent than to cure! Fight against cholera." In addition 150,000 handbills were distributed along the line of march. Newspapers gave generous space to the whole project, especially the Chinese papers, of which a number in Shanghai attain national circulation. Now that the parade is past, the motion picture film is being distributed throughout China and is to be shown in India as well.—Florence M. Seder.

Telling the Other Fellow—Here is one kind of letter which helps get good radio hours for health talks:

> *Station XYZ:*
>
> That was a bully talk on diphtheria by Dr. John Smith Tuesday evening. I hope that you will give us more good speakers on health subjects.
>
> *James Brown*

If you and I and other listeners will write letters now and then to broadcasting stations telling what health talks we like it will count in getting good time for more of them. If you don't like the talk, be very sure to tell the station what was wrong with it.

"Fan mail" has much to do with what broadcasting stations and newspapers offer their audiences. Should we leave the letter writing to the followers of comic strips and astrologers?

How Prominent People Help—As reported in *News Letter*, West Virginia State Dept. of Health (July 15, 1931):

> During a recent campaign for smallpox prevention in Middletown, N. Y., the mayor, who heartily supported the movement, had himself and his entire family vaccinated. Pictures were taken of the local health officer and nurse administering the vaccine. These were published in the local papers, and later in New York State *Health Bulletin*.
>
> This idea could be happily used in many West Virginia communities. When planning an immunization campaign not only secure the coöperation of the mayor but have him visit your office, bringing his family, if he has children or grandchildren, and get a picture of the vaccination in process. Do all this prior to the campaign. Then see if your local papers will carry this picture, together with the story of the campaign. If necessary pay to have the picture inserted.
>
> Where you cannot get your papers to use it, have copies of the picture made (enlarged if necessary) and used on posters in a few prominent store windows. This will attract much attention and create favorable comment.
>
> This same publicity stunt might be used in connection with other prominent people in the community, such as the superintendent of schools, the leading merchant, or wealthiest man in town. Another way is to have one class in the school or the whole school, with a per cent immunization against diphtheria, typhoid and smallpox or all three, photographed and the picture used in a prominent place with proper caption.

What Health **Topics for Social Workers**?—The National Conference of Social Workers has a Health Division, usually holding 5 sessions. What kind of public health material should be presented at a national gathering of social workers? What problems, possibilities and technics in the field of public health should be presented in meetings largely made up of non-public health workers? Send your suggestions to the chairman, Anna Drake, Public Health Federation, 312 W. 9th St., Cincinnati.

Nearly **Every One a Quack Doctor**?—In "Medical Amateurs," radio talk by Dr. H. W. Haggard, is a striking picture of the conscious and unconscious quack practice of medicine. Splendid material on which to base talks and copy, and a document for widespread distribution. The simplicity of the writing is almost a model for health educators. *Free* from Eastman Kodak Co., Rochester.

How to **Get Copies**—The names of periodicals referred to in this department usually appear in italics. When you wish to secure a copy containing an article mentioned in this department it is wise to *quote the reference in full.* Then you guard against omitting essential facts. Certainly mention the date when one is given. Usually a health agency will send free single copies of its own bulletin or house organ, and usually copies of a magazine of general circulation must be paid for. The editor will supply omitted addresses, and usually can loan a copy, but *address the periodical direct* if you wish a copy all your own.

ADVERTISING

"Health Claims in Advertising" (*Hygeia*. Aug., 1931) presents several points, good and bad.

The magazine advertisements of the Metropolitan Life Insurance Co. continue to be a major contribution to direct health education. And they should be illustrative of possibilities in the selection and arrangement of material for other forms of printed health education.

"Building the Fortresses of Health" is the general title of a portfolio reproducing a series of page advertisements issued by Parke, Davis & Co., Detroit.

To tell some of the fascinating stories connected with medicine—to give people a clearer understanding of what the recent advances in medical science mean to them and to their children—to portray the part played by physician, pharmacist, and maker of medicines in safeguarding the health and happiness of the nation and the world—to tell the public at large who we are and what we stand for:—

Presumably they are scientifically sound. Certainly they are admirable examples of what can be done with pictures and words to present health material in readable form. Address the Company for a free copy.

RADIO

"Some Diseases We Don't Talk About and Why Not" (venereal diseases), by Massachusetts Socy. for Social Hygiene, over WBZ and WBZA. Also 5-minute talk on syphilis over WNAC. Any comebacks, Mr. Kiernan?

Health broadcasting was reported by the U. S. Public Health Service at the World Association for Adult Education meeting in August in Vienna. We quote a few paragraphs from the manuscript prepared by Asst. Surg. Gen. R. C. Williams:

An inquiry sent to each of the 48 state health departments of the United States indicates that in 15 of these states the health department regularly issues broadcasts on public health subjects. Such broadcasts are usually issued weekly, twice a month, or monthly. Six state health departments issue broadcasts at irregular intervals. The earliest state broadcasting was begun in 1922. Several of the states have been engaged in this work for a number of years. The combined population of the states that issue broadcasts regularly is

approximately one-half of that of the United States.

An inquiry addressed to the city health department of the 200 largest cities of the United States indicates that 18 cities regularly issue public health broadcasts, which are usually issued weekly, twice a month, or monthly. Seventeen cities reported the use of the broadcasts at irregular intervals.

Forty-two county medical societies prepare and broadcast regularly programs dealing with public and personal health.

According to information obtained through the American Medical Association, there is 1 city in the United States that has a rather unique arrangement. The city medical society, in coöperation with the state medical association, conducts a weekly broadcast. This broadcast consists of questions and answers. This particular hour is called Doctor K–R–L–D. It is located at Dallas, Tex. Great numbers of letters have come to Doctor K–R–L–D for attention. They are an evidence of an interest of the public, not only of the State of Texas, but all over the United States. No one knows the identity of Doctor K–R–L–D, and no one is permitted to tell who does know.

Here is a first attempt to classify the forms possible in broadcasting. Additional items, or entire re-grouping of the forms will be welcome.

Talk or speech: alone, or with music, dramati s or other features.

Music: with credit for sponsorship by the agency, or with other features.

Dramatic: monologue, conversation or dialogue, or play.

Questions and answers: answers to questions from listeners; answers to a group of questions supposed to be of interest to the audience; test questions offered to the audience—to be answered next week; possibly with awards for answers from the audience; test questions put to a prominent person with his answers checked on the spot or checked by answers next week.

Please report on any of the above which you have already tested.

CONTESTS

The Massachusetts Society for Social Hygiene, 1150 Little Bldg., Boston, announces a competition to secure a suitable manuscript for publication on sex hygiene, designed for adolescent boys and girls. An award of $500 is offered to the author of the manuscript selected.

The society has in mind a pamphlet on the important subject of sex hygiene which will be useful in developing a rational attitude toward sex problems on the part of young men and young women between the approximate ages of 14 and 18 years.

Such a pamphlet should contain quite definite statements about the physiology and psychology of sex, including the various aspects of the sexual instinct, and should refer to the temptations and dangers of sex, to autoerotic activity, to the more common abnormalities, and to the venereal diseases.

Recognizing the fact that young men and young women of the present day are considerably advanced in their information about life and sex, and are subjected to many influences tending to undermine the wholesome and normal attitude so necessary to meet the problems growing out of sex in young adult life, this society believes that this subject should be handled in a straightforward manner which has not characterized the usual sex hygiene pamphlet of the past.

Five judges of outstanding reputation in the field of education and social hygiene will judge the manuscripts and make the award.

All manuscripts must be submitted not later than October 1, 1931, when the contest closes. The manuscript should contain from 5,000 to 6,000 words. The award of $500 will be made January 1, 1932. Write for the conditions.

State and national winners have been announced in the third annual Gorgas Memorial Essay Contest. Address the Memorial at 1331–3 G St., N. W., Washington, for details. About 12,000 contestants in 43 states participated. This should mean that a significant amount of reading and study of health topics was done by high school students. We venture the suggestion that a much larger number will participate next year if the Memorial Institute can

see the way to offer simpler and more unified subject matter for the essays.

The Ohio Public Health Assn., Columbus, awarded a first prize of $50 to D. L. Mansell, *Canton Repository,* for "the best Christmas seal editorial appearing in an Ohio daily." S. H. Green, *Putnam County Gazette,* did the best editorial in a weekly. Mr. Green is a farmer who writes for various country newspapers.

NEWSPAPERS

An important coöperating agency in health education is the Associated Press, which distributes to its member newspapers a 6-day a week health column. Known as "How's your Health?" the column is written by Dr. Iago Galdston, New York Academy of Medicine. It is distributed by the Associated Press Feature Service in sheet form, 14 days at a time, each column running about 8½ inches in length. Early August topics: Choosing a Sanatorium; Causes of Stuttering; Stutterers; Superstitions; Children's Sun Baths; Glaucoma; Blue Mondays; Light and Tuberculosis—I; Light and Tuberculosis—II; Soap and the Skin; Leaking Heart; Heart Disease; When They Won't Eat; Mother as a Nurse. The column is being used by about 300 newspapers in the United States.

Some health workers complain that some newspapers are unwilling to mention the venereal diseases, but in at least one city health department annual report we find the same inhibition. "Social diseases" is as far as that health officer will go!

WORDS

In a recent issue of *New York World-Telegram* says Heywood Broun:

> An old pet theory of mine is being strengthened day by day. As a matter of fact, it has ceased to become a theory. By now it is a conviction. I refer to the almost universal tendency of writers—particularly young writers—to say too much. . . . The true artist in any field gets the best results through an economy of words or motions.

A plea for short words—from *The Wedge,* issued by Batten, Barton, Durstine and Osborn:

> The reason we use short words to talk with is that they mean exactly the same thing to talker and hearer. When we drag in a lot of jointed words, we forget before the sentence is finished just what it was we were trying to say; and the other fellow never does find out. For the same reason, we use short words to think with. . . . Short words are easy and pleasant to read. The eye picks up their meaning without conscious effort. But the average reader stumbles over pompous words and loses his mental balance. They annoy and bore him. After about two staggers, his interest wanders and he turns to the next page.

DIPHTHERIA

"The Milwaukee Health Department urges all parents to have their children protected against Diphtheria" on the back of the August quarterly bills from the municipal water department. Includes list of diphtheria prevention stations in the section to which the bills are addressed. *Sample, 2 cents.*

"Diphtheria Waning" is simply a large type table comparing cases and deaths for 1900, 1925 to 1930. Effective. On coverpage of *Monthly Bulletin,* Phila. Dept. of Health. June, 1931. *Free.*

"Interesting the Public in Diphtheria Immunization," by Dr. J. L. Rice. *Conn. Health Bulletin,* State Dept. May, 1931. *Free.* How it was done in New Haven.

EDUCATIONAL MATERIAL

"The Periodic Health Examination —The Keystone of Preventive Medicine," by Dr. D. B. Armstrong. Metropolitan Life Insurance Co., New York. *Free.* Reprint from *New York State Journal of Medicine.*

"Addressing Lay Organizations on the Health Examination," by C. Ward

Crampton, M.D., 515 Park Ave., New York. *Free.* Reprint from *New York State Journal of Medicine.* Addressed to county medical society members who may be invited to speak before lay audiences. Not too much material to overwhelm the busy practitioner.

From American Society for the Control of Cancer, 25 W. 43d St., New York:

Important Facts for Women about Tumors. 14 pages; dated.

What Everyone Should Know about Cancer. 24 pages; 4th edition; dated.

A reprint on the need of cancer services. Important; on glossy paper.

The Endowment of Cancer Control Activities. 14 pages; one of the unhappily few examples of dignified presentation of public health for appealing to large givers. *Copies of above free.*

REPORTING

Inspired, we believe, by the colorful graphic presentation of statistics by the group in Vienna, Dr. Lee K. Frankel, through his Welfare Division of the Metropolitan Life Insurance Company, set a new high for statistical presentation in this country. Seeing Is Believing (happy title!): A Campaign to Lengthen Life Told in Pictures is a 14-page pamphlet recording "a carefully planned, persistent campaign of health education and nursing care." Every reader will want a copy; *every reader may have a copy upon request.*

The 27th report of Visiting Nurse Assn. of Somerset Hills: "for purposes of economy this statement replaces the usual annual report." A 6-page folder; 3½" by 8½"; effective selection of essential information; some will argue that it is all that an annual report needs to be—if adequate month by month interpretation has preceded it. "15,445 miles were traveled by one nurse doing school nursing." No office address is given and N. J. is not mentioned. The Baldridge poster of the nurse (issued by the N. O. P. H. N.) makes an attractive cover design.

Four pages of the 1930 report of Infant Welfare Society of Chicago contain a picture story of the services rendered. Two photographs (3 by 3½) on a page with descriptive caption in middle of the page do a good job of explaining. The text of the reports would attract more readers by the addition of subject headings. *2 cents.*

"Health history in the making"—white letters on red bands across the top and bottom of a 6-page folder, 4¼ by 9½, annual report of Queensboro Tuberculosis and Health Assn., 163–18 Jamaica Ave., Jamaica, N. Y. Several good inside features better seen than described. It is not dated. *Samples free.*

Reporting that "New Haven Wins First Place" in the Chamber of Commerce of U. S. A. contest, *Health,* New Haven Dept. of Health, devotes its May issue to a symposium of congratulation and interpretation by the city's leading citizens.

Births, Infant Mortality: Local Distribution in Bellevue-Yorkville Health Demonstration. B–Y Health Demonstration, 325 E. 38th St., New York. 9 pages of maps and statistical tables reproduced in a fairly inexpensive form for such detailed data. The Demonstration will supply information on request.

THEY BELIEVE IN EDUCATION

"Education the Need" is argued in "A Rational Dental Hygiene Program for Municipalities," by Dr. C. J. Hollister. *Pennsylvania's Health,* State Dept. of Health. May–June, 1931. *Free.*

HONORABLE MENTION

To Bombay Presidency Baby and Health Week Assn., Bombay, India: for annual report with a table of contents.

COÖPERATING GROUPS

The National Advisory Council on Radio in Education, 60 East 42d St., New York, is one of the newest coöperating agencies. Established to advance adult education via broadcasting the council will seek to further health and social welfare presentation by radio. Health and social workers may become associate members, subject to approval by the executive committee, without payment of a fee. Valuable publications have been issued and others are in course of preparation. Levering Tyson is the director and recently Curtis E. Lakeman has joined the staff. Mr. Lakeman was formerly with the American Society for the Control of Cancer and the New York State Department of Health, both of which initiated some of the earliest health talks by radio. For publications on radio and information about the Council write to 60 East 42d St., New York.

Three years ago the Special Maternal Care Committee of the National Council of Women of Canada urged local units of the Council to organize for action. One result is reported in *Social Welfare*, Toronto (June, 1931), in the study of conditions in Toronto and an intensive speaking campaign which reached its climax on "Mother's Day."

"Parent-Teacher Associations and The Family of Tomorrow," by N. W. Edson. *Journal of Social Hygiene*, 450 7th Ave., New York. May, 1931. The opportunity and some methods.

Study courses on the preschool child and on child training are offered by *Parents' Magazine*, 255 4th Ave., New York. Based on magazine articles, discussion outlines, debate topics, etc. *Information free.* Dr. B. C. Gruenberg is co-author of the preschool series.

"Toward Understanding Children," *University of Iowa Extension Bulletin*, Iowa City. Feb. 1, 1931. Interesting example of university coöperation with a state conference on child development and parent education. 95 pp. *Price unknown.*

More than half of Kiwanis Clubs of the United States and Canada are in places of less than 10,000. Missoula, Mont., has Rotary, Lions and Kiwanis with a total membership of 220 of which 108 are Kiwanis. Missoula was one of four Kiwanis given awards in the annual "efficiency contest." Among the several score activities were included: advocated and assisted in forming a public health council; assisted in Red Cross Roll Call and Christmas Seal Sale; assisted in furnishing milk to underweight children in the public schools; secured a school dentist and paid $158.00 toward his salary; investigated and advised employment of a public health nurse in the public schools; furnished glasses for needy children at a cost of $70.00.

Have state departments or state associations worked out plans for cooperation with these clubs—satisfactory to the service club and economical for the health agency?

CAMPAIGNS

In the July JOURNAL under Diphtheria we quoted D. M. Griswold, M.D. (*Ill. Health Quarterly*, State Dept. of Public Health. Jan.–Mar., 1931), on the significance of "mass movements." Dr. Griswold has some questions as to the campaign as a method:

> I feel, however, that campaigns on diphtheria prevention or tuberculosis examinations, etc., should be used only in the early days of a piece of work and should soon be discontinued. Campaigns depend too much upon emotionalism and such undesirable emotions as fear and dread for their success. We should, therefore, cease as soon as possible the idea of campaigns for doing things that we should do. We should eliminate all such unwholesome emotions as fear and dread and replace them with such positive ideas as the desire for good health; the desire for sound teeth; the desire for immunity against all diseases as far as that is possible.

BOOKS AND REPORTS

Bacteriology—Especially Determinative Bacteriology—*By Dr. K. B. Lehmann and Dr. R. O. Neumann. English translation of the 7th completely revised German edition. Volume II—Part I. General Bacteriology. Part II. Special Bacteriology. Edited by Robert S. Breed, New York Agricultural Experiment Station, Geneva, N. Y. New York: Stechert (Alfred Hafner)*, 1931. Price, $12.50 for 2 Vol.

The work of Lehmann and Neumann has for many years been a standard text used in several countries. The present volume is translated from the 7th German edition. Needless to add, a work which has gone through so many editions has not only received the benefit of criticism, but has proved its value.

The preparation of the English edition has required more than 2 years and the original had brought the material up to February, 1927. It is evident therefore that some of the material cannot be regarded as entirely up-to-date. The object and character of the book, however, lessen the importance of this, though there are some serious omissions which we believe the editor would have done well to have supplied in footnotes, a typical example of which is found under "Methods of Cultivating the Tubercle Bacillus." Some 8,000 citations are given, mostly German, though a fair attempt has been made to include the work of bacteriologists in other countries.

The editor believes that the outstanding "value of this book lies in its systematic arrangement of our knowledge regarding the still too imperfectly known and numerous types of bacteria." In this we agree. He acknowledges the impossibility of a satisfactory classification of bacteria, but expresses regret that Professor Lehmann shows a tendency to modify the rules of nomenclature. We believe that Professor Lehmann has the best of the argument on this point.

Including 3 appendixes, there are 827 pages of text, into which a vast amount of recorded knowledge has been condensed, with a good index of 39 pages. As stated in the preface, the book has been published with little expectation of financial returns. To the editor and his assistants, as well as to the firm which is responsible for this English translation, a debt of gratitude is due from all bacteriologists.

The printing and binding, which were done in Germany, are excellent, and there are very few errors. The work can be commended without reservation to bacteriologists. M. P. RAVENEL

Practical Clinical Psychiatry for Students and Practitioners—*By Edward A. Strecker, M.D., and Franklin G. Ebaugh, M.D.* (*3d ed.*) *Philadelphia: Blakiston*, 1931. Price, $4.00.

In the third edition of this popular textbook there are many new illustrations, and a new chapter of 63 pages on "Some Practical Aspects of Child Guidance Problems" has been added. In general, the rest of the text shows no important changes from the second edition. The general manner of presentation of material is excellent. The giving of actual cases does much to give the student a better understanding of the subject.

Minor criticisms might be made of the presentation of certain topics. In dis-

cussing mental deficiency we find the statement that a moron has an intelligence quotient of from 50 to 74 and a mental age of from 7 to 10 years, two ratings which are somewhat contradictory.

The book is undoubtedly one of the best texts on psychiatry which we have at the present time and should continue to have wide use. KARL M. BOWMAN

The Significance of Water-Borne Typhoid Fever Outbreaks, 1920–1930—*By Abel Wolman and A. E. Gorman, with a Foreword by Thomas Parran, Jr. Baltimore: Williams & Wilkins*, 1931. 82 pp. Price, $2.00.

The present-day emphasis in the public health program on personal hygiene has tended to obscure not only the undisputed and far-reaching accomplishments of sanitation but also, and more important, it has in a measure obliterated the fact that we still have in many communities dangerous problems in water supply and sewage disposal. The solution of these through measures which have been proved time and again to be effective are fundamental prerequisites to any elaboration of community programs for child hygiene, infant welfare, and personal hygiene, which are today receiving such great attention. This analysis of the major causes of water-borne outbreaks of typhoid fever and dysentery and the chronological record of 240 outbreaks in the United States and Canada comes therefore as a timely warning and emphasizes the dangers to which we are still exposed.

The authors are to be particularly congratulated and thanked for the clarity of their dissertation in a field which has not been marked for the lucidity of its reports.

Some of the tables would be helped by footnotes explaining that the symbols classifying the outbreak are taken from the excellent outline in Table 4.

The record indicates 7 repetitions of outbreaks in the same city, of which 4 were from the same cause (rather than 5 and 1 as stated by the authors in their conclusions). Of the 8 states reporting no outbreaks during the decade, 2 are southern, but it is interesting to note that, with the exception of Maryland, all 5 states in which repetition of outbreaks occurred are in the north (Indiana, New York, North Dakota and Wisconsin).

This should prove a valuable source book for teachers, engineers and health officers. HOMER N. CALVER

The Measurement of Nervous Habits in Normal Children—*By Willard C. Olson, Ph.D. Minneapolis: University of Minnesota Press*, 1929. 97 pp. Price, $2.00.

Dr. Olson's book is a report of a study which he conducted at the Institute of Child Welfare at the University of Minnesota and in the Minneapolis public schools. In the preliminary study the children were observed in the schoolroom for the manifestation of oral, nasal, hirsutal, ocular, aural and genital habits.

Of all those under observation, oral habits correlated most highly with the total score. In the main study one point was given for one or more manifestations of an oral habit (thumb sucking, finger sucking, nail biting, protruding tongue) per each 5-minute period of observation. As the most reliable procedure was found to be twenty 5-minute observations of each child, a child's score might be any number from 0 to 20, with the higher scores the more undesirable. For the main body of the study 636 children were observed in grades 1 through 8 of a single elementary school.

The scores of oral habits were found to distribute themselves over a normal curve so that " Properly stated the question concerning a child is not, ' Is he nervous? ' but ' How nervous is he? ' "

Apparently age, grade location and degree of intelligence had little influence upon the amount of habit manifested by the individual child. A reliable sex difference was, however, indicated in favor of the boys.

Consideration was given to the incidence of nervous habits among children of the same family; the effect upon the child of association with persons of nervous habits, outside the family group; the influence of fatigue, nutritional status, and length of breastfeeding upon nervous habits, etc. While certain relationships are indicated statistically in all these instances it is as yet impossible to talk in terms of causation. Dr. Olson recognizes the variability and multiplicity of factors in human affairs and is consequently cautious in drawing his conclusions.

The study is valuable because it is an adaptation of what Dr. Olson calls the "natural history approach" to controlled methods of research; we may await with interest the results of his further investigations.

JEANETTE REGENSBURG

Medical Jurisprudence—*By Alfred W. Herzog, M.D. Indianapolis: Bobbs-Merrill,* 1931. 1051 pp. Price, $15.00.

Books devoted to medical jurisprudence usually deal either solely with the legal aspects, or else with the medical, and only rarely with both. This may be because they are written either by lawyers or by physicians and seldom by anyone who combines these two professions.

This ponderous volume by the editor of the *Medico-Legal Journal* is both legal and medical. Some parts of it will be valuable to the physician in pointing out his legal rights and liabilities, while others will serve as useful information for the lawyer by giving him more or less scientific discourses on various phases of medicine.

Among the 56 chapters is a rather brief one entitled "Health and Sanitation Authorities," which presents principles based on numerous court decisions with reference to the creation and organization of health authorities, their powers and duties, and liability for expenses. This material would probably be of interest to a practising physician, but not of great value to a health official or to a lawyer involved in public health litigation.

The book contains an extensive table of cases, a good index, and a fair bibliography. The references would have been improved if all the cases had been dated, despite the labor which would have been involved. This volume will be found of value for reference by those interested in medico-legal problems, even though the discriminating reader may not agree with all that is said, or with the interpretation of some of the legal decisions cited.

JAMES A. TOBEY

International Studies on the Relation Between the Private and Official Practice of Medicine with Special Reference to the Prevention of Disease—*Conducted for the Milbank Memorial Fund by Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. Vol. I. The Netherlands, Scandinavia, Germany, Austria, Switzerland. Baltimore: Williams & Wilkins,* 1931. 248 pp. Price, $4.00.

The publication of a series of International Studies on Medical Practice in various countries is an event of very special interest. We are beginning at last in this country to emerge from adolescent self-satisfaction and to recognize that older nations have much to teach us, particularly in the field of social organization. We could have no better instructor than Sir Arthur Newsholme, whose wide experience as Chief Medical Officer of the Local Government Board of Great Britain equipped

him admirably for a survey of the health problems in other lands.

In this, the first of three volumes, are many specific lessons which may prove of significance to us in the solution of similar problems. In the chapter on Holland we have an opportunity to observe extraordinary success in the development of private mutual medical organizations for the treatment of disease under a system of voluntary cooperation; and to note the effect of a properly organized midwifery program on the maternal death rate.

In Denmark we find a development of hospitalization of unique completeness and a voluntary system of sickness and invalidity insurance which, without compulsion, has secured as wide a coverage as is obtained under compulsion in Germany. Here also we have an experience of nearly a century and a half in the treatment of venereal diseases under government auspices.

Sweden was similarly a pioneer, and has ever since been a leader, in the field of vital statistics with a system of registration dating back to 1748.

Norway presents a picture of a highly developed local health organization in which the medical officer is the key to the entire medical work in each commune, and its insurance system in which the doctor is paid on a service rather than a per capita basis is an interesting contrast to the methods in many other countries.

Germany illustrates the advantages and disadvantages of an extensive compulsory insurance system and of a wide variety of only partially coördinated social welfare organizations. The history of unfortunate conflicts between the medical profession and the public is fairly and fully told in its bearing on collective versus individual bargaining between the insurance fund and the physician. The case of the physician against the German system is fully and adequately presented.

The chapter on Austria presents a somewhat better picture and shows the working of a program in which district physicians are on a salary basis which does not depend directly either on specific services rendered or on the number of persons served. There is also considerable freedom with regard to the consultation of physicians not members of the official staff. The arguments against this program are presented in a significant quotation from Dr. Georg Weinlaender.

Finally, in Switzerland we see conditions somewhat more like those of the United States with 25 small cantons enjoying more or less complete home rule, some of them having compulsory sickness insurance and others not.

More detailed analyses of certain of these European systems can be obtained from the studies of the League of Nations and the International Labor Bureau. For a general picture in brief compass nothing could be better than this volume. It is accurate, dispassionate and well balanced. It should be invaluable to all thoughtful students of this problem as opening up new vistas of international experience in a most important field. C.-E. A. WINSLOW

Psychology for Nurses—*By Fred A. Moss, M.D., Ph.D. Boston: Houghton Mifflin,* 1931. 273 pp. Price, $2.50.

This book, instead of leading the reader through a maze of definitions and then through a dry discourse on the anatomy and physiology of the nervous system, plunges into the practical aspects of psychology as a nurse needs to know them in her contacts with her patients and coworkers. She learns how to analyze and understand her own attitudes and emotions in order to be able to understand those of her patients.

Part I deals with Psychology and its Place in Nursing. Under this are such topics as, Traits People Have in Com-

mon; Factors Influencing Behavior; Effects of Bodily Conditions on Behavior; and chapters on Mental Disorders and Psychology and Delinquency.

Part II deals with Individual Differences, with chapters discussing individual differences due to race, family, training, age, sex, and emotional outlets. The chapter on Differences Due to Race, especially as it touches the negro, race prejudices and race differences in achievement, is especially good.

Sociology and mental hygiene are linked up with psychology in a way to make them all vivid, vital, and practical. It is refreshing to have an author realize that in most nursing schools now the subjects taught are of college grade and the textbooks do not need to be couched in language and form that a seventh or eighth grader can understand.

But why limit this book to nurses alone? Everybody could read and study it with interest and profit. I recommend it unreservedly.

EVA F. MACDOUGALL

So Youth May Know—*By Roy E. Dickerson. New York: Association Press,* 1931. 255 pp. Price, $2.00.

This is one of the most satisfactory books on social hygiene for boys yet written. The author has combined authentic data with sound philosophy. He has avoided "wishy-washy" sentimentalism and fearsome sensationalism—those two most distasteful concomitants of many previous volumes in this field. His treatment of such subjects as prostitution, masturbation, syphilis, and gonococcus infection, is in keeping with the best modern thought. Above all, his emphasis on decency and clean-living makes his effort a guide-book rather than a mere series of "don'ts."

To sum up, here is a short, readable book which we can safely recommend for reading by boys of from early teens on. The preface adds nothing of value.

RAY H. EVERETT

Military Preventive Medicine—*By George C. Dunham, M.D.* (2d ed.) *Carlisle Barracks, Pa.: Medical Field Service School,* 1931.

That a second edition of this book has been called for in less than a year speaks well for it. The new edition has been revised, brought up to date, and two chapters—one on the administrative features of physical examinations, and the other on vital statistics—have been added. Fifty-four additional illustrations have also been included.

The good impression made by the first edition has been strengthened. The book is more complete and more valuable than before.

M. P. RAVENEL

Health and Human Welfare—*By William E. Burkard, Ph.D., Raymond L. Chambers, Ph.D., and Frederick W. Maroney, M.D. New York: Lyons and Carnahan,* 1931. 532 pp. Price, $1.40.

This is another addition to the rapidly growing list of health textbooks for secondary schools.

The book is prepared in the usual textbook style with large type and numerous simple illustrations. At the end of each chapter is a list of questions followed by a concise summary of the subjects discussed. It should be easy for teachers to use and will probably make health interesting to children. There are numerous chapters whose application must be made at home, such as "Care of the Baby," and "Care of the Sick." A special section is devoted to "Information for Parents," adapted from a pamphlet prepared and used by Dr. Maroney when he was director of health education in the Atlantic City Public Schools.

Frauds, quacks and patent medicines are given well deserved space, and the problems of adolescence are presented in a chapter called "The Spring of Life," in a careful and pleasing manner

that should be easily understood and yet not offensive to anybody.

In reading this book one gets an impression of frequent unnecessary repetition and occasional misplaced emphasis. An example of the latter are 4½ pages of directions on how to clean the teeth and only passing comment here and there on the value of diet in building strong teeth. Certainly scurvy is no longer a health problem, yet 10 pages are devoted to it.

Evidently the authors are not advocates of pasteurized milk and the following statement will not get unanimous approval—"To safeguard infants from scurvy they should be given liberal quantities of raw milk, if possible." For this reason "certified milk is better than pasteurized milk although it is more expensive." Nothing is said about milk-borne epidemics or the part pasteurization has played in stopping and preventing them.

Although an effort has evidently been made to touch on all the subjects relating to public health, no mention is made of water purification or sewage disposal. Chapters on "The Romance of Sanitation" and "Health and Science Today" cannot be considered complete with such omissions. A diagram showing the decline in typhoid fever death rates is described as showing "some striking results of the rise of the preventive treatment (inoculations) against this disease." None of the other far more important causes are mentioned.

In a brief description of "ringworm" only the old fashioned kind is mentioned. Nothing is said about the much more serious fungus infection between the toes which is now spreading rapidly and attracting so much attention. Other errors are not serious but ought not to escape a careful editor.

Bacteria in the form of chains of dots are called "cocci." The "spirillin" is given as the kind of bacteria that causes cholera. We are informed that pasteurized milk is that which has been heated to 122°–125° for 20 to 30 minutes, but the correct temperature is given in another connection. No doubt such errors will be corrected in the next edition.

We also should like to call the authors' attention to the omission of the name of the American Public Health Association from the list of national health organizations and that of "other organizations from which health education materials may be obtained."

JOHN HALL

The Story of Health—*By Hope Holway. New York: Harper,* 1931. 150 pp. Price, $1.25.

No person can rightfully claim to possess that desirable attribute known as a liberal education unless he is cognizant of the principles of hygiene and sanitation. No student should ever leave school without this fundamental knowledge, which may be acquired in part by the historical method, since tradition and experience are among the best of all teachers.

In this attractively printed little book, the wife of an eminent sanitary engineer has presented a concise and readable summary of the history of medicine and the development of modern public health, a story which Dr. Logan Clendenning recommends in a brief foreword as the first course of reading for the young person to take outside the regular school texts.

The book covers a comprehensive field in a succinct but interesting manner. More space than approximately 2 pages might, however, have been devoted to Pasteur, possibly at the expense of the rather lengthy description of magic and the disease dispelling charms and sorceries of ancient man. Although some of the more recent episodes in the conquest of disease are rather sketchily presented, this narrative should inspire interest in the more com-

plete stories as given in a number of recent books about "microbe hunters" and "riders of the plagues." For this purpose, a useful bibliography is appended. There is a good index and also there are many excellent illustrations by Elmer Hader.

Mrs. Holway's volume can be recommended as one of the best of the texts on the history of public health designed for schoolroom use.

JAMES A. TOBEY

Proceedings of Ninth Annual Water Works School, University of Kansas, Lawrence, February 11, 12, 13, 1931.

The proceedings of the ninth annual water works school covered a number of branches of the water works profession and allied professions. The subjects included were sources of water supply; water treatment including softening, filtration and sterilization; biological and bacteriological examinations and control; plant operation; distribution and financing. Related papers touched upon the subjects of design and operation of sewage treatment plants; induction motors; concrete admixtures; swimming pool sanitation; and accidents and causes.

A paper on mottled enamel of the teeth, by R. W. Kehr, was of particular interest in that it brought out the extent of this dental defect in the State of Kansas and its relationship to municipal water supplies. The percentage of school children with mottled teeth in the infected areas varies from a very high percentage for those starting use of the municipal supply at birth down to zero for those starting its use at the age of about 14. Contributing causes of mottled enamel appear to be sodium bicarbonate in the water or a combination of sodium bicarbonate and a low total hardness. More complete chemical analyses in further studies is essential.

VINCENT B. LAMOUREUX

Chemistry for Nurses—*By Harry C. Biddle, A.M. Philadelphia: Davis,* 1931. 322 pp. Price, $2.75.

This book is the outgrowth of a lecture and laboratory course which the author gave over a period of years in several large Cleveland hospitals.

The National League of Nursing Education recommends a 45-hour course in chemistry as an essential minimum for the nurse's training period which the material in this text is designed to fit.

One cannot but be impressed with the orderly arrangement of the book. Part I deals with Inorganic Chemistry, Part II, with Organic Chemistry. At the beginning of each chapter are several short questions reviewing the previous day's lesson; this furnishes efficient repetition to assure permanence of learning. Then comes an outline of the day's lesson, followed by some practical questions to stimulate interest. There are review questions at the end of each chapter, followed by Topics for Oral or Written Reports and Suggestions for Posters, Charts or Exhibits. Each chapter ends with a manual for laboratory work with several blank pages added for personal notes.

In the long appendix practical aspects of vitamins, milk, blood, urine, antiseptics and disinfectants, etc., which the nurse needs to know, are taken up.

This text is really professional in that only such facts and principles as have a bearing upon the work which the student must face are taken up. The book is recommended very highly. Its only drawback is the sheen on the paper.

EVA F. MACDOUGALL

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

Suffolk **County, N. Y.**—How a county health department in a 2 years' period has brought about the coördination of existing services, removed overlapping, and filled gaps in health machinery is described in this 1930 report. A generalized nursing service on a township basis has been established, and supervision of milk production on a county-wide basis has been provided. All licenses and permits such as those for milk, boarding homes for children, maternity homes and the others required by the public health law and sanitary code are issued after inspection by the County Board of Health.

A veterinary division, the first of its kind in the state, was established under the board of health. Bovine tuberculosis eradication has been completed in addition to extensive investigations of other diseases of animals. Camps are regularly inspected during their period of operation as to water and milk supplies, sewage and garbage disposal. All records with reference to the work of the department are maintained in the central office and are readily available for consultation or other information purposes.

This county of 169,463 population records an infant mortality rate of 52. The expenditures for the last fiscal year amounted to $63,000.

Hartford, **Conn.**—On the basis of a population of 164,072, a resident death rate of 10.5, a tuberculosis rate of 70, a cancer rate of 103.6, and a heart disease rate of 234.6 are reported. An infant mortality rate of 62.8 is noted. There were no deaths from diphtheria. The milk supply is obtained from tuberculin tested cows and over 90 per cent is pasteurized.

The Visiting Nurse Association furnished bedside care, case supervision, and follow-up work of tuberculosis under the general supervision of the Board of Health. A somewhat similar arrangement has been made for providing child hygiene nursing services. A study of the causes back of the deaths of infants under 1 year of age revealed that in 97 per cent of the deaths from prenatal causes, the mother had not had adequate prenatal care, and in 81 per cent of those from postnatal causes, there had been no medical or nursing supervision before the illness.

With the prenatal, postnatal, and child welfare services available at the clinics of the hospitals, the Hartford Dispensary, and the city, there are sufficient facilities for all mothers and babies not receiving adequate care from their private physicians. The difficulty seems to be in convincing a certain type of mother of the need of the service.

A survey of the Charity and Health Departments of the city resulted in recommendations for the consolidation of the isolation and municipal hospitals under management of a board of public welfare and for 3 additional full-time physicians for the board of health to head bureaus of communicable disease, tuberculosis, and child welfare.

The prevention of disease rather than the treatment of the sick is considered to be a proper function of the Board of Health, and the operation of the isolation hospital as a part of the municipal hospital under the welfare board instead of as a separate unit will present distinct advantages.

New Hampshire—Increasing demands from the public for the assistance of various departments of the State Board of Health are indicated in the 31st report for the period ending June 30, 1930. A steady increase in the number of samples of public and semi-public water supplies analyzed is noted. Progress is being made in the

elimination of lead pipes from water systems. The water supply problem presented by summer tourists and campers is growing. "Withal, it means that all such sources, and, indeed, all surface sources, should be chlorinated, as a safeguard."

Tuberculosis control work is conducted by the State Tuberculosis Association, which is financed by the sale of Christmas seals and by contributions. In 1928 there were 305 deaths from tuberculosis, all forms, as compared with 234 (185 pulmonary) in 1929. Much diphtheria immunization work is reported in many of the cities and towns, particularly in Claremont. The division of maternity, infancy, and child hygiene has developed, among other things, hygiene class work for the junior and senior girls in the high schools of the state. The course comprises 7 lectures followed by a written examination. If a mark of 85 is attained, a Certificate of Hygiene is given to the pupils from the State Board of Health. Community classes for adults and Little Mothers' classes for girls between the ages of 10 and 14 are conducted by staff nurses. Monthly health bulletins are widely distributed.

Shanghai, China—The 1930 public health department report of Shanghai consists of 82 pages, besides a table of contents at the front and an alphabetical index at the back which increase the usefulness of this interesting document. The foreign death rate was 18.15 and the Chinese death rate recorded was 16.42 per 1,000 population. Of the total deaths included in the foreign death rate, 63.3 per cent were among Asiatics other than Chinese, while 53.6 per cent of the whole were Japanese.

A somewhat heavy mortality was noted among both foreigners and Chinese from measles. An increased incidence of this disease is recorded every second year. Of the major diseases, cholera and smallpox showed a comparatively slight incidence. A very large increase in the number of malaria cases was noted. In general administration, steady progress is noted in the organization and control of licensed food and other premises. Structural improvements in dairies as laid down by the 1924 milk commission were completed.

Educational opportunities are discussed and it is noted that the Senior Chinese Medical Officer in the Public Health Department proceeded to Liverpool under the Holt Scheme with a view to postgraduate study in tropical medicine and hygiene. Plans have been perfected for the voluntary registration of medical practitioners, dentists, and veterinary surgeons. The report contains many excellent graphs and statistical tables.

Cleveland, O.—Cleveland's 1930 health report opens with a service directory, followed by an index of statistical tables and subjects discussed. The death rate of 10.99 per 1,000 population is considerably lower than that of the preceding year, 12.29, when an increase in influenza and pneumonia as well as a clinic disaster unfavorably affected the rate. The incidence of communicable diseases was low in 1930, with the exception of a sharp outbreak of poliomyelitis which began late in the summer, reached a peak in late September and declined in the late autumn. Infant mortality has fallen from 85.9 in 1920 to 54.48 in 1930.

The number of cases of tuberculosis reported has not materially increased or decreased in recent years, but tuberculosis among colored persons has become an increasingly important problem. About 16 per cent of the cases reported and 37 per cent of the deaths are among colored persons, although this group represents only about 8 per cent of the total population. In the

administration of a tuberculosis program the control of contacts is recognized as an important factor. At the central office of the bureau of tuberculosis a master file of all contacts 18 years of age and under is maintained, and contains 13,578 cards, 7,466 of which are for children under 12 years of age. Reference is made to a recent survey of existing conditions pertaining to the prevention and control of tuberculosis in the city and county.

For administrative purposes the City of Cleveland has been divided into 8 health districts, shown on a map. District health stations serve as centers for the field work of public health nurses and also offer clinic service for child hygiene and tuberculosis control. A district physician is also assigned to each station in order to render medical care to the indigent sick. Medical care to convalescent or ambulatory cases, which have been previously attended in the home by district physicians, is provided for at the health stations to a limited extent. A branch office of the bureau of sanitation is maintained in one station.

The area supplying the city with milk extends to several points beyond the state of Ohio. Whenever inspection is carried on at points more than 150 miles distant from the city, the cost is borne by the shippers inspected. All milk is from tuberculin tested herds and 99 per cent is pasteurized.

Montclair, N. J.—The 1930 health audit of the town of Montclair opens with a photograph of new quarters in a separate health center building, where "We are now able better to house and control our different clinics, our nursing bureau, and other activities, and we wish to emphasize the fact that the department has been furnished with a strong weapon for the control of contagion in the town."

During the year, there was added a director of nurses, whose function is not only to direct the activities of health department nurses, but to coördinate the nursing services of the private as well as public organizations. The work of the Visiting Nurse Service of the Montclair Red Cross (Public Health Nursing Bureau) was taken over under an agreement with the Community Chest that the service would be financed by that body provided direct supervision were given by the Department of Health.

Another activity instituted by the Health Officer was the Birthday Greeting Card, sent on the first birthday of all children born in Montclair. This educational plan aims to attract the attention of the parent to the necessity for abundance of sleep, fresh air and sunshine, together with preventive measures that can be taken to keep the child free from contagion. The card is printed in two colors, blue and pink, with an envelope to match. An infant mortality rate of 35.4 is reported.

Baltimore, Md.—In the 1930 report of the Baltimore Health Department, vital statistics rates for the past decade have been adjusted on the basis of the population figures of the last federal census. The 1930 population at mid-year was 806,607, of which 143,557 were colored. A death rate for the year of 13.9 is recorded, 12.7 for the white and 19.6 for the colored persons. Figures are presented to show that the greatest effect in the reduction of the number of cases and deaths from typhoid was produced by the purifying of the drinking water (1911–1914) and the pasteurization of milk (1918). A case rate of 16.36 and a death rate of 3.35 are reported for 1930.

A quotation from the Health Officer's report on the bureau of child welfare seems appropriate.

> Since this bureau was established in 1919, its work has been shown to be more and more important, because of its taking advantage of

the opportunity of being the first agency to teach parents and expectant parents many important factors in care of children; their nutrition, immunization against disease (smallpox and diphtheria), and the removal of physical defects that might become factors in preventing proper development of the child.

We consider that the child in the preschool age (birth to and including the 5th year) is in a period of life when a great deal may be done to insure vigorous childhood. Indeed, our work begins before the child is born, by counteracting syphilitic infections and organic lesions in the expectant mother, so that a live, healthy child may be born.

We recognize that unusual care must be taken by us to avoid encroaching upon the private physician's domain and we exercise it. Physicians will be of great service to us and to the citizens if they themselves will provide the necessary proper instruction and care in these cases that will prove attractive to parents, because we are inclined to believe that such activity will bring them closer and closer to the people as proper instructors in public health work.

Sarawak, Borneo—Interesting photographs and charts characterize the 1930 health department report of Sarawak. Among the various charts and graphs on permanent display in the health office are an administrative map of Sarawak, indicating communications, facilities, and the like; working maps showing water supplies, trades, conservancy and latrines, dairies, abattoirs (regularly flagged and corrected by district inspectors); a mosquito spot-map displaying the result of two anopheline mosquito surveys; weekly birth and death chart with quarterly rates; annual infant mortality rates with Malay and Chinese components; a map of the whole Eastern Arena, comprising the quadrilateral figure between the points Port Said, South Africa, Japan, and New Zealand. On receipt of the weekly wireless broadcast from the League of Nations office at Singapore the infected ports are flagged and the danger points thus instantly recognizable.

A small public health museum is attached to the health office and deals with child welfare, malaria, mosquitoes, rats, food supplies, building materials, scavenging, conservancy, disinfectants, poisonous animals, meteorology, and water supplies. The visitors to this museum during the year numbered 977; and, of these, 452 were Chinese, 386 Malays, 54 Dyaks, 32 Indians, and 38 Europeans.

West Riding of Yorkshire—The 23d annual report of the school medical officer of West Riding of Yorkshire states that the question of nutrition was the chief object of scrutiny during the year. The policy of providing milk midway through the morning was continued and the amount of milk, whether free or in return for payment, was considerably increased. No systematic inspection has been made of the number of persons falling below the poverty line, but the existence of unemployment insurance is believed to prevent the submergence of many families below that line. Some families keep above by extraordinary management, and others fall below for the opposite reason.

A complete examination includes the three statutory age groups—(1) entrants, (2) intermediates, and (3) leavers, together with (4) special cases and children for (5) re-inspection. All children wearing glasses come under notice, and myopic children with 5 dioptrics or more correction are seen by the school oculist. An inspection of sanitary conveniences of the school, the playground, children doing physical exercises and the assembled school completes the observation. The "mass inspection" is said to be an excellent complement to the examination of individual children. Members of the staff are urged to confer with the head teacher before leaving the school after completing an inspection.

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NEWS FROM THE FIELD

LEONARD WOOD MEMORIAL LEPROSY WORK

THE Board of Directors of the Leonard Wood Memorial announces at this time the completion of its fund for $2,000,000. It takes this opportunity of expressing its sincere thanks to each of the 50,000 American citizens who by their contributions have made possible this great American Foundation. The Board further assures the American public that these funds are being disbursed in accordance with the terms of the gifts and with the counsel of scientists experienced in the field of leprosy. It ventures the opinion that the encouraging results in leprosy treatment and the international good will that have already ensued are but forecasts of even greater progress in these respects in the future, and for these reasons believes it not amiss to congratulate all those who by their generosity have seen fit to become partners in this great international enterprise."

. . . .

"The Leonard Wood Memorial's program of activities is devoted to research, direct and indirect, in the treatment of leprosy. It comprises two main divisions. About one-half million dollars is to be spent for buildings, equipment, and roads in the Philippines; the balance as a semi-endowment to be expended, both principal and interest, over a period of approximately 15 years. . . . One of the most important single items in the Memorial's capital building program, and the largest, was the establishing of a complete new leprosarium at Cebu, on the island of Cebu, nearly 400 miles southeast of Manila. This institution was planned to care for those suffering from leprosy in its earlier and milder stages."

. . . .

"Another item was to be the establishing of a new skin clinic. The Philippines, like other countries of the Orient, abound in skin diseases. In many instances these represent incipient leprosy. The splendid new white concrete skin clinic built at Cebu by the Memorial is proving a God-send to children with loathsome affections, and is resulting in the detection of many cases of leprosy, and at a stage where the arresting of the disease is almost a certainty." —*Leonard Wood Memorial Booklet*, Metropolitan Tower, New York.

AMERICAN SOCIETY OF CIVIL ENGINEERS

THE Board of Directors of the American Society of Civil Engineers has authorized the appointment of a Committee on Municipal Cleansing. It is proposed that the committee shall consist of 3 members of the American Society of Civil Engineers, but that there shall be added to it a representative also from each of the following: American Society of Mechanical Engineers, the American Medical Association, the American Public Health Association and the American Society of Municipal Engineers.

Dr. Henry F. Vaughan has been appointed to represent the American Public Health Association.

CINCINNATI HEALTH CENTER

AN unsolicited gift of $10,000 made by the Western and Southern Life Insurance Company makes possible the expansion of its program at the Cincinnati Health Center by the Board of

Health. The money is to be used for the purchase of an X-ray machine and whatever accessories are required, as well as to defray the cost of the services of a part-time expert X-ray operator.

EUGENICS

THE Third International Congress of Eugenics will be held in New York, during the summer of 1932.

DRESDEN LOAN EXHIBIT AT LIFE EXTENSION INSTITUTE

AN unusual and interesting collection of graphic charts and anatomical specimens from the famous Museum of Hygiene of Dresden has been loaned by the Museum to the Life Extension Institute and is on exhibition at the Head Office in New York.

This world-renowned Dresden museum is devoted to the instruction of the general public in the conservation of health. In 1911 the First International Hygiene Exhibition was held in Dresden which proved to be so successful that its founders and sponsors coöperated in the establishment of the museum as a permanent institution. Since its organization it has attracted millions of people from all parts of the world and is the gathering place of hundreds of international scientific associations. The health and hygiene sections of the League of Nations meet here regularly. In its beautiful and spacious buildings it has assembled in a vivid and interesting manner everything that is of significance to the health of the people.

The anatomical specimens included in the loan exhibit to the institute have been prepared by a special process which renders them translucent, making possible complete visualization of the underlying vascular and bony structures. These specimens are creating particular interest.

The Institute cordially invites all who may be interested to call and view this unique exhibit.

TO OPEN HOSPITAL NEAR ARCTIC CIRCLE

BISHOP TURQUOTIL, a pioneer missionary in the north country who is known as the "Bishop of the Arctic," left Churchill, Man., in July with 4 nurses, members of the Grey Nuns, in his 25-foot motor boat on the hazardous trip along the rocky west coast of Hudson Bay to open a hospital at Chesterfield Inlet. This will be the farthest north hospital on this continent.

The hospital will serve the nomadic Eskimos and the hunters and prospectors that search for fur and gold on the fringe of the Arctic Circle. Education courses in hygiene will be given to the Eskimo children by the 4 sisters.

TREATMENT FOR BLIND CHILDREN WITH CONGENITAL SYPHILIS

AS a result of the examinations conducted by the Virginia State Health Department in the School for the Deaf and Blind, and the subsequent examinations conducted by Dr. J. E. Blaydes of Bluefield this year, many blind children have been placed under treatment for congenital syphilis. The Bureau of Venereal Diseases is providing the drugs and arranging with private physicians in communities wherein the children reside for administering the treatment.

CHILDREN'S ACCIDENTS

MORE than 18,000 children in the United States were killed by accidents in 1930, and a very large number were seriously injured. Yet these startling figures represented a considerable decrease in accidental deaths of children, especially those of school age, according to the supervisor of New York City's child-safety demonstration. He found that low intelligence, worry, weariness, day-dreaming, love of adventure, and rebellion against authority are among the mental causes of accidents, and he suggests that parents and teachers should take them into con-

sideration in the training of children.—U. S. Children's Bureau, Washington, D. C.

DR. PETER LECTURES AT CHINESE MEDICAL SCHOOLS

DR. W. W. PETER, F. A. P. H. A., has been lecturing in the Central University Medical School and at Nanking University, and has given a course in industrial hygiene in Shanghai conducted jointly by the Chinese National Health Administration and the Ministry of Industries, in a school for the training of factory inspectors for the various provinces and larger municipalities.

PARIS MEETING ON TUBERCULOSIS

THE annual meeting of the Council of the International Union against Tuberculosis, whose Chairman is Professor Frölich (Norway), was held in Paris July 9; delegates from 17 countries attended this meeting.

The scientific session was held at the Pasteur Institute, in the new tuberculosis laboratories which the members of the Council visited under the guidance of Professor Calmette.

The next Conference of the International Union will be held at The Hague from September 6 to 9, 1932.

NATIONAL SAFETY COUNCIL

AS the teaching of safety becomes more general, and the quality of the work improves, there is an increasing need for pooling experiences, and giving publicity to approved and effective methods. As a result the National Safety Council has organized a Child Education Section corresponding to the other sections of the Council dealing with industrial and public safety problems.

The first meeting of the Child Education Section will be held in connection with the Twentieth Annual Safety Congress to be held in Chicago October 12–16.

HEALTH DEPARTMENT SURVEY

DR. JOSEPH W. MOUNTIN, member of the A. P. H. A., recently began a survey for the U. S. Public Health Service of the Baltimore City Health Department, at the request of Dr. Charles Hampson Jones, Commissioner of Health of Baltimore. It will include an attempt to define the boundaries between public health work and private medical practice; will cover sanitation, vital statistics, communicable disease control, child and maternal hygiene, industrial and mental hygiene, hospital facilities and activities of welfare agencies. He recently made surveys of the Health Departments of the State of Tennessee and the cities of Knoxville, Tenn., and Wilkes-Barre, Pa.

PERSONALS

DR. CLARENCE L. SCAMMAN, F.A.P.H.A., of Boston, formerly deputy commissioner of public health of Massachusetts and director of the division of communicable diseases, has become director of the division of public health of the Commonwealth Fund of New York.

DR. WALTER W. LEE, F.A.P.H.A., has been appointed District State Health Officer in the Berkshire district of Massachusetts, succeeding Dr. Frederick S. Leeder, who has a similar position in the Southern Berkshire Health District.

DR. E. H. PADDEN has been appointed Flight Surgeon for the three airways of the United Air Lines west of Chicago. These include Boeing Air Transport, between Chicago and San Francisco; Pacific Air Transport, between Seattle and San Diego; and Varney Air Lines, between Salt Lake City and Seattle.

DR. FREDERICK RAND ROGERS, Director of the Health and Physical Education Division of the University of the State of New York, will leave the department September 1 to become dean of student health and physical education at Boston University.

HUNTINGTON WILLIAMS, M.D., D.P.H., of the New York State Department of Health, Life Member of the American Public Health Association, has been appointed Director of Health of Baltimore, Md., by Mayor Howard W. Jackson of Baltimore.

RECENT APPOINTMENTS in Kentucky include: Dr. Lewis C. Coleman, of Salyersville, to Madison County, succeeding Dr. Harold W. Sterling, who has accepted an appointment in the U. S. Public Health Service; Dr. Robert J. Gillespie, of Long Beach, Miss., to Magoffin County, succeeding Dr. Lewis C. Coleman; Dr. Allen F. Murphy, of Beckley, W. Va., to Lee County; Dr. Squire R. Boggess, of Lawrenceburg, to Anderson County.

DR. JAMES M. PARROTT, of Kinston, N. C., was appointed secretary of the Board of Health and State Health Officer, succeeding the late Dr. Charles O'H. Laughinghouse.

DR. WILLIAM O. MCDERMOTT, of Casper, Wyo., was recently appointed Health Officer of Natrona County, succeeding Dr. Homer R. Lathrop.

DR. FRANCES M. LANE, of Cody, Wyo., was recently named Health Officer of Park County, replacing Dr. Frank A. Mills, of Powell, Wyo.

DR. ADELAIDE BROWN, F.A.P.H.A., of San Francisco, has resigned from her office in the California State Board of Health, with which she was connected for over ten years.

ELLSWORTH L. FILBY, F.A.P.H.A., has resigned as Chief Engineer and Director of the Bureau of Engineering, Florida State Board of Health, to become a member of the staff of Black & Veatch, Consulting Engineers of Kansas City, Mo.

CONFERENCES

September 14–17, Sixtieth Annual Meeting, American Public Health Association, Montreal, Canada.

September 20–26, First National Congress on Social Service for Children in Argentina, under the auspices of the National Council of Women of Argentina, Buenos Aires, Argentina.

September 20–26, Medical Association of South Africa, Johannesburg, South Africa.

September 23–30, Centenary Meeting of the British Association for the Advancement of Science, London.

September 25–28, American Protestant Hospital Association, Toronto, Ont.

September 28, Children's Hospital Association, Toronto, Ont.

September 28–October 2, American Hospital Association, Toronto, Ont.

September 28–October 2, American Occupational Therapy Association, Toronto, Ont.

October 12–16, Twentieth Annual Safety Congress, Chicago, Ill.

October 19, 20, Conference of the Child Study Association, New York, N. Y.

October 22, 23, Seventh Annual Meeting of the Missouri Water and Sewerage Conference, Jefferson City, Mo.

November 9–14, the Ninth Texas Sanitarians' Short School, Houston, Tex.

July, 1932, The Second International Conference of Social Work, Frankfurt, Germany.

SELF-INFECTION DURING COLDS
avoided through use of
KLEENEX TISSUES
in place of handkerchiefs